

**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
**Bid Receiving Public Works and Government  
Services Canada/Réception des soumissions  
Travaux publics et Services gouvernementaux  
Canada**  
**Pacific Region**  
**401 - 1230 Government Street**  
**Victoria, B.C.**  
**V8W 3X4**  
**Bid Fax: (250) 363-3344**

**REQUEST FOR PROPOSAL**  
**DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government  
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services  
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

<b>Title - Sujet</b> Fab & Del Two 8.5M RIBs	
<b>Solicitation No. - N° de l'invitation</b> F7047-150008/A	<b>Date</b> 2015-09-14
<b>Client Reference No. - N° de référence du client</b> F7047-150008	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$XLV-166-6806	
<b>File No. - N° de dossier</b> XLV-5-38087 (166)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2015-10-26</b>	
<b>Time Zone</b> <b>Fuseau horaire</b> Pacific Daylight Saving Time PDT	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Castle, David G.	<b>Buyer Id - Id de l'acheteur</b> xlvl66
<b>Telephone No. - N° de téléphone</b> (250) 363-0110 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> FISHERIES AND OCEANS CANADA SEE HEREIN	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

Public Works and Government Services Canada - Pacific  
Region  
401 - 1230 Government Street  
Victoria, B. C.  
V8W 3X4

<b>Delivery Required - Livraison exigée</b> See Herein	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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**REQUEST FOR PROPOSALS (RFP): Fabrication and Delivery of 8.3 M to 8.6M Rigid Inflatable Boats with Open console T Top and trailer for the Department of Fisheries and Oceans.**

**PART 1 - GENERAL INFORMATION**

**1.1 Security Requirements**

There is no security requirement associated with this bid solicitation.

**1.2 Statement of Work**

The Department of Fisheries and Oceans has a requirement to purchase two (2), 8.3M to 8.6M Rigid Inflatable Boats with Open Consoles, T-Tops and trailers in accordance with the Technical Statement of Requirement- (TSOR) Annex A and inspection as per Annex C- Inspection/Quality Assurance /Quality Control. All deliverable are to be delivered on or before May 31, 2016.

**1.3 Debriefings**

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

**1.4 Trade Agreements**

"This requirement is subject to the provisions of the Agreement on Internal Trade (AIT), the World Trade Organization - Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada - Chile Free Trade Agreement, the Canada - Peru Free Trade Agreement and the Canada - Panama Free Trade Agreement."

## **PART 2 - BIDDER INSTRUCTIONS**

### **2.1 Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manua> l) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

#### **2.1.1 SACC Manual Clauses**

B3000T, 2006-06-16, Equivalent Products  
A9125T, 2007-05-25, Valid Labour Agreement

### **2.2 Submission of Bids**

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

**Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.**

### **2.3 Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than 4 calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

### **2.4 Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in **British Columbia**.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

### **2.5 Improvement of Requirement During Solicitation Period**

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement

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as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least five (5) working days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **3.1 Bid Preparation Instructions**

Canada requests that bidders provide their bid in separately bound sections as follows:  
Section I: Technical Bid (two hard copies and one soft copy on USB memory stick.)  
Section II: Financial Bid (one hard copy and one soft copy on USB memory stick.)  
Section III: Certifications (one hard copy and one soft copy on USB memory stick.)

Note: Bids in digital format (the soft copies) can be provided on the same USB memory stick.

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>).

To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

### **3.2 Section I - Technical Bid**

In their technical bid, bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

In order to demonstrate their capabilities, the bidders must use the **ANNEX –H - BIDDER'S RFP REPLY AND EVALUATION PLAN, using column B ONLY** in replying to the RFP.

The technical bid must demonstrate that the proposed crafts will be mechanically sound, completely seaworthy, and operable and fit in all respects for the purposes intended.

#### **3.2.1 Bidder's Check List and Technical Confirmation**

The Bidders must submit a fully completed Annex **G - BIDDERS' BID PACKAGE CHECK LIST** as part of their Technical Bid.

#### **3.2.2 Inspection and Test Plan (ITP)**

1. Bidders must provide with their bid the inspection plan and testing procedures that will be used to verify, test and inspect all of the components and systems on the boat from initial construction to completion. The ITP must be in accordance with **Annex C** attached to this RFP.
2. Bidders must outline the process by which they will address and solve problems or delays with the fabrication, various installations, testing and delivery of the boat.

### 3.2.3 Drawings and Other Documentation

#### Prescribed drawings format and documentation to be provided with the bid:

- A general arrangement.
- Structural Drawings showing Deck Plan, a Centerline profile.
- A detailed Lines Plan.
- A drawing of the fuel supply arrangement.
- A drawing of bilge pumping system
- Electrical one-line diagram.
- The lightship weight.
- Draft Stability Calculation of the proposed vessel
- A Project Plan (written description) of how the Bidder/Contractor will comply with the TSOR. The written description must address each main element of the TSOR and indicate how the Bidder/Contractor will comply with the intent of the TSOR and successfully deliver the vessel(s) to the performance standard(s) identified.
- A Preliminary Production Schedule which must verify the Bidder/Contractor's ability to deliver the vessel(s) in accordance with the requirements of the Solicitation.

### 3.2.4 Subcontractors

As part of their Technical Bid, Bidders must submit a completed Annex **E Subcontractor List**.

### 3.2.5 Vessel Construction Experience

The Bidder must provide objective evidence of experience in the construction of vessels of the size, type and complexity which are the subject of this RFP. To demonstrate this experience, the Bidder must provide

- (a) detailed list of such vessels built pursuant to TP 1332, Construction Standards for Small Vessels, Non-pleasure craft latest edition, within the last 5 years;
- (b) photographs of vessels of listed;
- (c) (for listed TP 1332, non-pleasure craft sold within the last 5 years only) purchaser's name and contact information, and the date of sale.

The Bidder must also provide details on how the materials and equipment used in the construction, manufacture of the proposed vessel is suited to the operating and environmental conditions that the vessel may encounter.

### 3.2.6 Naval Engineering Capability

The Bidder must provide objective evidence that it has either in-house capabilities, or has a written commitment for the duration of the Contract from a qualified sub-contractor to provide marine drafting and engineering services. Qualified sub-contractor is defined as having the provided these services on similar vessel construction projects (same size, type and complexity).

### 3.2.7 Contractor's Quality Management System

1. The Bidder must provide objective evidence that it has a Quality Assurance Program, which must be in place during the performance of the Work, and which addresses the quality control elements below.
2. The objective evidence may be in the form of a copy of the Bidder's Quality Assurance Manual which addresses these elements.

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3. The Bidder must also provide a minimum of one (1) samples of completed quality records used on the most recent marine vessel construction at its facility.

4. The quality control elements must include, as a minimum:

Quality Assurance Manual or Quality Assurance Program Descriptions  
Inspection and Test Plan  
Final Inspection  
Quality Records

### **3.2.8 Insurance Requirements**

The Bidder must provide a letter from an insurance broker or an insurance company licensed to operate in Canada stating that the Bidder, if awarded a contract as a result of the bid solicitation, can be insured in accordance with the Insurance Requirements specified in *Part 6 - Resulting Contract Clause 6.19*.

If the information is not provided in the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement.

Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

### **3.3 Section II - Financial Bid**

Bidders must submit their financial bid in accordance with the **Detailed Financial Bid Presentation at Annex D**.

#### **3.3.1 Exchange Rate Fluctuation**

C3011T, 2013-11-06, Exchange Rate Fluctuation

#### **3.3.2 Financial Capability**

A9033T, 2012-07-16, Financial Capability

#### **3.3.3 Unscheduled Work**

Bidders must provide the information requested in Annex D, Article D-2. The unscheduled work rates will be included in the Basis of Payment but will not form part of the bid evaluation.

### **3.4 Section III: Certifications**

Bidders must submit the certifications required under Part 5.

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## **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

### **4.1 Evaluation Procedures**

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
  
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### **4.1.1 Technical Evaluation**

##### **4.1.1.1 Mandatory Technical Criteria**

In order to be compliant, the Bidder's proposal must, to the satisfaction of Canada:

- a) Meet all requirements of the SOW; and
- b) Provide all information as requested in PART 3 - BID PREPARATION INSTRUCTIONS

#### **4.1.2 Financial Evaluation**

*SACC Manual* Clause A0222T (2013-04-25), Evaluation of Price

### **4.2 Basis of Selection**

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive as per Annex J- Evaluation plan. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

A mandatory requirement is described using the words "shall", "must", "will" "is required" or "is mandatory"

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## **PART 5 - CERTIFICATIONS**

Bidders must provide the required certifications and associated information to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default in carrying out any of its obligations under the Contract, if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority may render the bid non-responsive or constitute a default under the Contract.

### **5.1 Certifications Required with the Bid**

Bidders must submit the following duly completed certifications as part of their bid.

#### **5.1.1 Declaration of Convicted Offences**

As applicable, pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide with its bid, a completed Declaration Form, to be given further consideration in the procurement process.

### **5.2 Certifications Precedent to Contract Award and Additional Information**

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

#### **5.2.1 Integrity Provisions – List of Names**

Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

In order to facilitate the compliance of the Bidder's obligations under the Integrity Provisions, it is suggested that the Bidder provide the information requested in Annex F, INFORMATION REQUIRED FOR THE VERIFICATION OF INTEGRITY PROVISIONS in its bid.

#### **5.2.2 Federal Contractors Program for Employment Equity - Bid Certification**

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list ([http://www.labour.gc.ca/eng/standards\\_equity/eq/emp/fcp/list/inelig.shtml](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)) available from Employment and Social Development Canada (ESDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

## **PART6 - RESULTING CONTRACT CLAUSES**

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

### **6.1 Security Requirement**

There is no security requirement applicable to this Contract.

### **6.2 Statement of Work**

The Contractor must fabricate and deliver the Department of Fisheries and Oceans two (2), 8.3M to 8.6M Rigid Inflatable Boats with Open Consoles, T-Tops and trailers in accordance with the Technical Statement of Requirement- (TSOR) Annex A and inspection as per Annex C- Inspection/Quality Assurance /Quality Control. All deliverable are to be delivered on or before May 31, 2016.

#### **6.2.1 Optional Goods or Services.**

The Contractor grants to Canada the irrevocable option to acquire 1 (one) additional 8.3M to 8.6M Rigid Inflatable Boat with Open Console, T-Top and trailer as described at Annex A of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option within 12 months after contract award by sending a written notice to the Contractor.

### **6.3 Standard Clauses and Conditions**

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manua> l) issued by Public Works and Government Services Canada.

#### **6.3.1 General Conditions**

**2030, 2015-07-03**, Goods (Higher Complexity) apply to and form part of the Contract.

#### **6.3.2 Supplemental General Conditions**

**1028, 2010-08-16**, Ship Construction - Firm Price, apply to and form part of the Contract.

Conduct of Work. The Supplemental General Conditions 1028, Article 02 (2010-08-16) Conduct of Work, Paragraph 1. Canadian Labour is deleted in its entirety.

**Warranty.** The Supplemental General Conditions 1028, Article 12 (2010-08-16) – Warranty, Paragraph 3 is deleted and replaced with the following:

The warranty periods for the vessel, from the date of its delivery to and acceptance by Canada, are:

- a) Twelve (12) months for the boat propelling machinery and auxiliaries, fittings and equipment of all kinds (excluding Government Supplied Material).
- b) Twenty four (24) months for the vessel hull and welding.

### **6.4 Term of Contract**

#### **6.4.1 Delivery Date**

All the deliverables must be received on or before \_\_\_\_\_ ( Date to be entered at contract award)

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#### 6.4.2 Delivery Location

Fisheries and Oceans Canada

Attention: (To be completed by the Contracting Authority at Contract Award)

Phone: TBD  
FAX: TBD  
E-Mail: TBD

#### 6.4.3 Shipping Instructions - Delivery at Destination

1. Goods must be consigned to the destination specified in the Contract and delivered CIP, Carriage and Insurance Paid, to the destination(s) listed in 6.4.2, Incoterms 2000 for shipments from a commercial contractor.
2. The Contractor is responsible for all delivery charges from the Contractor's facility to destination, including administration costs, insurance and risk of transport.

#### 6.5 Authorities

##### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Dave Castle  
Title: Supply Specialist, Acquisitions, Marine  
Public Works and Government Services Canada  
Acquisitions Branch  
Address: 1230 401- Government Street, Victoria B.C. V8W 3X3  
Telephone: 250-217-6555  
Facsimile: 250-363-3960  
E-mail address: david.castle@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

##### 6.5.2 Technical Authority

The Technical Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone : \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

***(Information will be provided at contract award)***

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

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### 6.5.3 Inspection Authority

The Inspection Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
Telephone: \_\_\_\_\_  
Facsimile: \_\_\_\_\_  
E-mail address: \_\_\_\_\_

***(Information will be provided at contract award)***

The Inspection Authority is the representative of the department or agency for whom the Work is being performed under the Contract and is responsible for inspection of the Work and acceptance of the finished work. The Inspection Authority may be represented on-site by a designated inspector and any other Government of Canada inspector who may from time to time be assigned in support of the designated Inspector.

### 6.5.4 Contractor's Representative

Name and telephone numbers of the person responsible for:

General Enquiries:

Name: \_\_\_\_\_ Telephone Number: \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-mail address: \_\_\_\_\_

Delivery Follow-up:

Name: \_\_\_\_\_ Telephone Number: \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-mail address: \_\_\_\_\_

## 6.6 Payment

### 6.6.1 Basis of Payment ***(to be completed by the Contracting Authority at Contract Award)***

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm Price of \$ \_\_\_\_\_. Customs duties and Goods and Services Tax or Harmonized Tax is extra, if applicable.

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

### 6.6.2 Charge-out Rate / Material Mark-up ***(to be completed by the Contracting Authority at Contract Award)***

The following rates are included in the Basis of Payment and must remain valid for the duration of the contract:

Charge-out Rate: \_\_\_\_\_  
Mark-up on Materials and Sub-Contracts: 10%

### 6.6.3 Unscheduled Work:

a) Price Breakdown:

The Contractor must, upon request, provide a price breakdown for all unscheduled work, by specific activities with trades, person-hours, material, subcontracts and services.

**b) Pro-rated Prices:**

Hours and prices for unscheduled work will be based on comparable historical data applicable to similar work at the same facility, or will be determined by pro-rating the quoted work costs in the Contract when in similar areas of the vessel.

**c) Payment for Unscheduled Work:**

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

6.6.3.1 Number of hours (to be negotiated) X \$\_\_\_\_\_, being the Contractor's firm hourly charge-out labour rate which includes overhead and profit, plus net laid-down cost of materials to which will be added a mark-up of 10 percent, customs duties are included and applicable taxes are extra. The firm hourly charge-out labour rate and the material mark-up will remain firm for the term of the Contract and any subsequent amendments.

6.6.3.2 Notwithstanding definitions or usage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating *Hours* for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package. Elements of *Related Labour Costs* identified in 6.3.3.3, will not be negotiated, but will be compensated for in accordance with 6.3.3.3.

6.6.3.3 Allowance for *Related Labour Costs* such as: Management, Direct Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Inspecting and Reporting, and Estimating will be included as *Overhead* for the purposes of determining the *Charge-out Labour Rate* set out in clause 6.6.2

6.6.3.4 The 10% mark-up rate for materials will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Chargeout Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

**6.6.4 Payment for Fuels, Oils and Lubricants**

The Contractor is responsible for the supply and cost of all fuel, lubricating oil, hydraulic oil and other lubricants sufficient for fully charging all systems as required for operating the machinery and other equipment and for performing all tests and trials.

**6.6.5 Field Engineering and Supervisory Services**

If Field Service Representatives (FSR) and/or Supervisory Services are required for the Work, the cost of all such services is to be included in the price for the Work.

**6.6.6 Limitation of Price**

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

**6.6.7 Method of Payment- Single payment**

Canada will pay the Contractor upon completion and delivery of the Work in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

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## 6.7 Invoicing Instructions

The Contractor must submit invoices in accordance with the information required in Section 13 of 2030 General Conditions Higher Complexity Goods, article 6.6.7 Method of Payment.

### Invoicing Address:

Invoices are to be made out and sent to:  
**Canadian Coast Guard**  
**200 Kent Street, Mail Station: 7W064**  
**Ottawa, Ontario, K1A 0E6**  
**Attention: TBD**

### A copy of the original invoice must be forwarded to:

Public Works and Government Services Canada  
Acquisitions, Marine  
401 - 1230 Government Street  
Victoria, B.C., V8W 3X4    Attention: David Castle

### 6.7.1 Warranty Holdback

A warranty holdback of 3% will be applied to the claim(s) for payment. This holdback is payable by Canada upon the expiry of the warranty period(s) of three (3 months applicable to the Work. Goods and Services Tax or Harmonized sale Tax (GST/HST), as appropriate, is to be calculated and paid on the total amount of the claim before the 3 percent holdback is applied. At the time that the holdback is released, there will be no GST/HST payable, as it was included in the previous payments.

### 6.7.2 Outstanding Work Holdback

In addition to any amount held under the Warranty Holdback Clause, a holdback of twice the estimated value of outstanding work will be held until completion of the Work. Applicable Taxes will be calculated on this outstanding work holdback amount and paid at the time that the outstanding work holdback is released.

## 6.8 Certifications

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

## 6.9 Welding Certification – Contract

1. The Contractor must ensure that welding is performed by a welder certified by the Canadian Welding Bureau (CWB) in accordance with the requirements of the following Canadian Standards Association (CSA) standards:
  - (a) CSA W47.2-M1987 (R2003), Certification for Companies for Fusion Welding of Aluminum division 2.1.
2. In addition, welding must be done in accordance with the requirements of the applicable drawings and specifications.
3. Before the commencement of any fabrication work, and upon request from the Inspection Authority, the Contractor must provide approved welding procedures and/or a list of welding personnel he intends to use in the performance of the Work. The list must identify the CWB welding procedure qualifications attained by each of the personnel listed and must be accompanied by a copy of each person's current CWB welding certification.

#### 6.10 Project Schedule

1. The Contractor must provide a detailed project schedule in MS Project format or equivalent to the Contracting Authority and the Technical Authority **5 days after award of Contract**. This schedule must highlight the specific dates for the events listed below.
  - (a) hull materials delivered to Contractor and sustained construction commenced;
  - (b) hull and deck completed, but not closed in to allow for full inspection of the structure and welding. The Contractor must supply a hard copy of the material certificates and construction drawings to the Technical/Inspection Authority one week prior to inspection by the Technical/Inspection Authority;
  - (c) outfitting/electrical 75% complete but all equipment and components delivered to the Contractor and available for full inspection. The Contractor must supply a hard copy of the list of equipment and electrical supplies to the Technical/Inspection Authority one week prior to inspection by the Technical/Inspection Authority;
  - (d) technical manuals delivered to Canada for approval (no less than 14 days prior to the planned delivery date);
  - (e) Contractor's tests and trial and final sea trials required by the SOW;
  - (f) boat and trailer delivered to Canada for approval;
  - (g) the start and the end of the twelve (12) month warranty period.

*Note: Technical Manuals will not be returned once approved.*

2. The schedule is to be regularly updated and available in the Contractor's office for review by Canada's authorities to determine the progress of the Work.

#### 6.11 Progress Reports

1. The Contractor must submit monthly reports on the progress of the Work in an electronic format to the Technical Authority and to the Contracting Authority.
2. The progress report must contain two (2) Parts:
  - (a) PART 1: The Contractor must answer the following three questions:
    - (i) is the project on schedule?
    - (ii) is the project within budget?
    - (iii) is the project free of any areas of concern in which the assistance or guidance of Canada may be required?

Each negative response must be supported with a clarification.

- (b) PART 2: A narrative report, brief, yet sufficiently detailed to enable the Technical Authority to evaluate the progress of the Work, containing as a minimum:
  - (i) a description of the progress of each task and of the Work as a whole during the period of the report. Sufficient sketches, diagrams, photographs, etc., must be included, if necessary, to describe the progress accomplished.
  - (ii) reasons of any variation from the schedule.

#### 6.12 SACC Manual Clauses

B9035C - Progress Meetings	2008-05-12
B5007C - Procedures for Design Change or Additional Work	2010-01-11
D3015C - Dangerous Goods/Hazardous Products	2007-11-30
D0018C - Delivery and Unloading	2007-11-30
C0711C - Time Verification	2008-05-12

#### 6.13 Trade Qualifications

The Contractor must use qualified, certified (where applicable) and competent tradespeople and supervision to ensure a uniform high level of workmanship. The Contracting Authority may request to view

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and record details of the certification and/or qualifications held by the Contractor's tradespeople. This request should not be unduly exercised but only to ensure qualified tradespeople are on the job.

#### **6.14 Quality Management Systems**

1. The Contractor must have in place a Quality Assurance Program approved by the Inspection Authority during the performance of the Work which addresses the quality control elements below.
2. The quality control elements must include, as a minimum:  
Quality Assurance Manual or Quality Assurance Program Descriptions  
Inspection and Test Plan  
Final Inspection  
Quality Records
3. The Contractor's facilities may be audited by Canada, or its authorized representative, during the performance of the Work to ensure that the approved system is in place and in accordance with the foregoing requirement.
4. The Contractor will be required to submit completed quality assurance documentation with each claim for payment as applicable.

#### **6.15 Post Contract Award/Pre-Production Meeting**

Within three (3) working days of the receipt of the contract, the Contractor must contact the Contracting Authority to determine the details of a pre-production meeting. The meeting will be held at the Contractor's plant or via telephone or video conference. The Cost of holding such a pre-production meeting must be included in the price of the bid. Please note that the travel and living expenses for Government Personnel will be arranged and paid for by the Canada.

#### **6.16 Manuals**

1. The Contractor must obtain and deliver to the Technical Authority for approval, all Data Books, Operating Instruction Books, Maintenance Manuals and Spare Parts Lists (including part numbers and ordering instructions) for all machinery and equipment fitted on the Vessel as required. These must be received no later than fourteen (14) calendar days prior to the delivery of each boat and once approved by the TA, the Contractor must provide two (2) complete copies in accordance with and as specified in the **SOW, Appendix I- Final deliverable data package**
2. Where manuals are examined by Canada, such examination does not relieve the Contractor of any responsibility under the Contract for ensuring the correctness of all details and adequacy of performance of the Vessel, nor does it obligate Canada to accept, in whole or in part, an item of Work completed in accordance with such manual, nor does it mean such an item of Work meets the requirements of the SOW.

#### **6.17 Inspection, Test & Trials**

1. During Construction of the vessel, the Contractor must arrange for regular inspections and upon completion of the construction of the vessel, the Contractor must arrange trials. All Inspections and test and trials performed must be in accordance with the SOW and the **Annex E - Inspection/Quality Assurance/Quality Control**. The Inspection Authority must approve any additional testing not specified in the SOW.
2. The Contractor must update as required the Inspection and Test Plan (ITP) provided with its bid and submit to the Contracting Authority and the Inspection Authority seven (7) days after contract award for review and approval.
0. Once approved, any modification to the ITP must be pre-approved by the Inspection Authority. A revised ITP will be required should any modification be made.

## **6.18 Government Supplied Material (GSM)**

As per the SOW, **Article 4.1.8**, the Contractor must install, as per the manufacturer's recommendations, the following GSM:

- (a) two (2) 300 Hp Yamaha 4 Stroke Outboards per RIB.

Note: The engines will ordered and shipped immediately after contract award upon- As per Annex A – Statement or Work- Propulsion system- “The contractor is to specify the engine horse power of the main engine to meet the maximum speed requirement “

## **6.19 Insurance Requirements**

The Contractor must comply with the insurance requirements specified in **Articles 6.19.1** and **6.19.2** below. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. Coverage must be placed with an Insurer licensed to carry out business in Canada. The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

### **6.19.1 Commercial General Liability Insurance**

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability policy must include the following:
  - (a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
  - (b) Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
  - (c) Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
  - (d) Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
  - (e) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - (f) Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.

- (g) Employees and, if applicable, Volunteers must be included as Additional Insured.
- (h) Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program).
- (i) Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
- (j) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
- (k) If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
- (l) Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
- (m) Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to: Director Business Law Directorate,  
Quebec Regional Office (Ottawa),  
Department of Justice,  
284 Wellington Street, Room SAT-6042, Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to: Senior General Counsel,  
Civil Litigation Section, Department of Justice  
234 Wellington Street, East Tower  
Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

#### **6.19.2 Marine Liability Insurance**

1. The Contractor must obtain Protection & Indemnity (P&I) insurance that must include excess collision liability and pollution liability. The insurance must be placed with a member of the International Group of Protection and Indemnity Associations or with a fixed market in an amount of not less than the limits determined by the Marine Liability Act, S.C. 2001, c. 6. Coverage must include crew liability, if it is not covered by Worker's Compensation as detailed in paragraph (2.) below.
2. The Contractor must obtain Worker's Compensation insurance covering all employees engaged in the Work in accordance with the statutory requirements of the Territory or Province or state of nationality, domicile, employment, having jurisdiction over such employees. If the Contractor is

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assessed any additional levy, extra assessment or super-assessment by a Worker's Compensation Board, as a result of an accident causing injury or death to an employee of the Contractor or subcontractor, or due to unsafe working conditions, then such levy or assessment must be paid by the Contractor at its sole cost.

3. The Protection and Indemnity insurance policy must include the following:
- (a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada as additional insured should read as follows: Canada represented by Public Works and Government Services Canada.
  - (b) Waiver of Subrogation Rights: Contractor's Insurer to waive all rights of subrogation against Canada as represented by Department of Fisheries and Oceans and Public Works and Government Services Canada for any and all loss of or damage to the watercraft however caused.
  - (c) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.
  - (d) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - (e) Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to: Director Business Law Directorate,  
Quebec Regional Office (Ottawa),  
Department of Justice,  
284 Wellington Street, Room SAT-6042, Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to:

Senior General Counsel, Civil Litigation Section, Department of Justice  
234 Wellington Street, East Tower  
Ottawa, Ontario K1A 0H8

4. A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

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## 6.20 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in \_\_\_\_\_ (To be completed by the Contracting Authority at Contract Award)

## 6.21 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

1. The Articles of Agreement;
2. The Supplemental General Conditions **1028, 2010-08-16**, Ship Construction Firm Price;
3. The General Conditions **2030, 2015-07-03**, Goods (Higher Complexity);
4. Annex A - Statement of Work;
5. Annex C - Inspection/Quality Assurance/Quality Control;
6. The Contractor's bid dated \_\_\_\_\_ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: ", as clarified on \_\_\_\_\_" or ", as amended on \_\_\_\_\_" and insert date(s) of clarification(s) or amendment(s).*)

## 6.22 Acceptance

1. The Inspection Authority, in conjunction with the Contractor, will prepare a list of outstanding work items at the end of the vessel's construction period. This list will form the annexes to the formal acceptance document for the vessel. A vessel acceptance meeting or telephone conference will be convened by the Inspection Authority on the work completion date of the vessel to review and sign off the form PWGSC-TPSGC 1105, Contractor's Certification.
2. The Inspection Authority must complete the above form and obtain the signatures of the Contractor and the Contracting Authority. The form will then be distributed by the Inspection Authority as follows:
  - a. one copy to the Contracting Authority;
  - b. one copy to the Technical Authority;
  - c. one copy to the Contractor.

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**ANNEX A - STATEMENT OF WORK**

**DEPARTMENT OF FISHERIES AND OCEANS**

**ANNEX A**  
**Technical Statement of Requirements**  
**Requisition number F7047-150008**

**For the provision of:**

**Two (2), 8.3 - 8.6m Aluminum  
Rigid Inflatable Boats (RIB)  
Open console with T-Top  
and trailers**

**July 24, 2015 Revision 0**



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## **ABBREVIATIONS**

ABYC	American Boat and Yacht Council
AC	Alternating Current
ASTM	American Society for Testing and Materials
CFM	Contractor Furnished Material
<b>CSA</b>	<b><i>Canada Shipping Act</i></b>
CSA	Canadian Standards Association
COLREGS	Collision Regulations
DC	Direct Current
GPS	Global Positioning System
GSM	Government Supplied Material
ISO	International Organization for Standardization
PVC	Polyvinylchloride
RIB	Rigid Inflatable Boat
TA	Technical Authority (As defined by the Contract)
TCMS	Transport Canada Marine Safety
TSOR	Technical Statement of Requirements
UV	Ultraviolet
VHF	Very High Frequency

## **LIST OF REFERENCE DOCUMENTS**

REFERENCE	TITLE
ASTM F1166	Standard Practice for Human Engineering Design for Marine Systems, Equipment and Facilities.
CT-043-EQ-EG-001-E	Canadian Coast Guard Welding Specification, March 2014
TP 1332	Construction Standards for Small Boats.
TP 13430	Standard For Tonnage Measurement of Ships .
TP 14070	Small Commercial Vessel Safety Guide.
ISO 12217	Small Craft – Stability and Buoyancy Assessment and Categorization.
Canada Shipping Act	Small Vessel Regulations
Canada Shipping Act	Collision Regulations (COLREGS)
ABYC	American Boat and Yacht Council Standards
Canadian Standards Association (CSA) CSA W47.2-M1987	Certification of Companies for Fusion Welding of Aluminium
(CSA) C22.2 No. 183.2-M1983 (R1999)	Standards for DC Electrical Installations on Boats

## **1.0 OVERVIEW**

- 1.1 Rigid Inflatable Boats (RIBs) are used extensively as primary craft for the Fisheries and Oceans fleet of vessels, as well as operating independently to carry out various program-related activities from shore-based facilities and trailers.
- 1.2 The primary mission is fisheries management through catch monitoring and enforcement, including environmental response, search and rescue, emergency boat duties.
- 1.3 The vessel must be configured as a T-Top and Shock seating equipped open RIB with an open fore deck accessible by steps around the side of the console. The vessel will be used to conduct conservation branch operations. The vessel must have an all-weather capability to Beaufort force 8. It is desirable that this vessel has a high-speed capability of at least 40-45 knots.
  - 1.3.1 Perform searches and surveillance by visual and electronic means;
  - 1.3.2 Tow equipment and other vessels in emergencies
  - 1.3.3 The craft must be capable of being ship-borne or shore-based: launched and recovered by stern ramp, davits or other means of hoisting such as derricks/cranes utilizing bridle; These craft will be primarily shore-based and will be launched and recovered by a trailer or deployed from a shore facility dock, and occasionally lifted aboard support ships

## **2.0 REQUIREMENT**

- 2.1 **General Information: This vessel is intended to be built based on stock small working or commercial vessel hull forms with a minimum of customization as indicated herein. Prototype hulls will not be considered for this procurement. A minimum of two proven hulls must be shown to have been produced and be in service within the last 5 years for the Contractor to indicate suitability of the hull for this procurement. Bidders must submit at a minimum the following items for each proven hull: General arrangement drawings; Photographs; References; Builder's plates; Hull identification numbers confirming the multiple builds.**
- 2.2 The Contractor must design, fabricate and supply quantity, two (2) 8.3-8.6m Open Aluminum T-Top Rigid Inflatable Boats (with an option for one additional vessel) The Vessels must comply with Transport Canada Marine Safety Branch (TCMSB) Marine Safety Publications TP 14612 and TP 1332. The boat must be an Aluminum Hull twin outboard motor configuration.
- 2.3 **TECHNICAL & DOCUMENTATION REQUIREMENTS**
  - The Contractor is responsible for all aspects of design and production of the vessel and must prepare their own Project Data Package to define the vessel and control the production process.
  - 2.3.1 **Bid Deliverable Data Package**

Requirements for Bid Deliverables are given in the Solicitation Document and applicable Annexes.
  - 2.3.2 **Preliminary Data Package**

The Preliminary Data Package must demonstrate that the vessel will be fully seaworthy, operable and fit in all regards for the purposes intended. The Contractor must submit their Preliminary Data Package for review by the Technical Authority and in accordance with the Contract.

In addition to any requirements given in the Contract and applicable Annexes, the Preliminary Data Package must include, but will not necessarily be limited to, the following technical drawings and information:

- 2.3.2.1 As identified in TP 14612, have received a certificate of approval following the procedures contained herein.
- 2.3.2.2 A general arrangement.
- 2.3.2.3 Structural Drawings showing Deck Plan, a Centerline profile.
- 2.3.2.4 A detailed Lines Plan.
- 2.3.2.5 A drawing of the fuel supply arrangement.
- 2.3.2.6 A drawing of bilge pumping system
- 2.3.2.7 Electrical one-line diagram.
- 2.3.2.8 The lightship weight.
- 2.3.2.9 Draft Stability Calculation of the proposed vessel.
- 2.3.2.10 A Project Plan (written description) of how the Bidder/Contractor will comply with the TSOR. The written description must address each main element of the TSOR and indicate how the Bidder/Contractor will comply with the intent of the TSOR and successfully deliver the vessel(s) to the performance standard(s) identified.
- 2.3.2.11 A Preliminary Production Schedule which must verify the Bidder/Contractor's ability to deliver the vessel(s) in accordance with the requirements of the Solicitation.

### **2.3.3 Construction Data Package**

The Contractor must revise and update their Preliminary Data Package to incorporate comments from the Technical Authority and must complete and submit their Construction Data Package to the Technical Authority. The Contractor must update their Construction Data Package to reflect changes in the requirement and/or changes in materials or equipment as necessary or when requested. In addition to any requirements given in the Contract and applicable Annexes, the Construction Data Package must include, but will not necessarily be limited to, the following technical drawings and information:

- 2.3.3.1 All technical drawings and information identified within the "Preliminary Data Package", updated as necessary (excepting that the "Project Plan" need not be revised);
- 2.3.3.2 The "Preliminary Production Schedule" must be expanded to a "Production Schedule" which must be regularly updated to demonstrate progress of the work and anticipated completion date;
- 2.3.3.3 Lightship weight and center of gravity calculations must be monitored and the Technical Authority must be advised of changes as they are identified;
- 2.3.3.4 Stability calculations must be revised when necessary or when requested;
- 2.3.3.5 Speed and endurance calculations;
- 2.3.3.1 Additional technical drawings, schedules and information as necessary to fully define the vessel;
- 2.3.3.2 Contractor shop drawings;

- 2.3.3.3 Technical information pertaining to materials and equipment;
- 2.3.3.4 Material certificates; and,
- 2.3.3.5 Other applicable technical information including samples of materials if requested.

#### **2.3.4 Final Data Package**

The Contractor must provide to Canada all documentation required by the Contract, this TSOR and other annexes or attachments to the Contract.

**The minimum acceptable final data package is as attached hereto at Appendix I.**

### **3.0 DESIGN AND CONSTRUCTION REQUIREMENTS**

Unless stated otherwise all components, equipment and material must be Contractor supplied.

#### **3.1 ERGONOMIC DESIGN**

- 3.1.1 Hazardous operating conditions must be prevented by arranging machinery and equipment in a safe manner; providing guards for all electrical, mechanical and thermal hazards to personnel; and providing guards or covers for any controls that might accidentally be activated by contact of personnel.
- 3.1.2 The boats must be designed and constructed to accommodate both male and female crew from approx. 5' 5" to 6' 4" in height, wearing cold weather clothing and equipment in accordance with ASTM F1166-07 Standard Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities.
- 3.1.3 Human engineering factors considered in design must include accessibility, visibility, readability, crew efficiency and comfort. All equipment must be accessible for use, inspection, cleaning and maintenance as per ASTM F1166-07.

#### **3.2 VIBRATION**

- 3.2.1 The boat and all components must be free of local vibration that could endanger boat personnel, damage boat structure, machinery or systems, or interfere with the operation or maintenance of boat machinery or systems.
- 3.2.2 Mounts for movable components, including items moved for stowage, towing or transport must be provided with resilient material as necessary to prevent rattling.
- 3.2.3 Loosening of fasteners under vibration must be prevented by the use of self-locking fasteners.

#### **3.3 EQUIPMENT PROTECTION**

The Contractor is responsible for the care of all equipment. All parts, especially those having working surfaces or passages intended for lubricating oil, must be kept clean and protected during manufacture, storage, assembly and after installation. Equipment must at all times be protected against dust, moisture or foreign matter and must not be subject to rapid temperature changes or extremes in temperature.

#### **3.4 SITE CLEANLINESS**

During construction, all chips, shavings, refuse, dirt and water must be removed at the completion of the work shift or sooner. The Contractor must ensure measures are taken to avoid wear and damage incident to construction, and to prevent corrosion or other deterioration. Equipment subject to freezing must be kept drained, except during test and trials. Equipment must be kept clean and protected from the environment prior to installation.

### **3.5 MATERIALS**

- 3.5.1 All materials must be corrosion resistant and suitable for use in a salt water environment as detailed in the Operational Requirements. All materials normally subjected to sunlight must resist degradation caused by ultraviolet radiation. Galvanized materials must not be used in the construction of the vessel.
- 3.5.2 Dissimilar Metals: Direct contact of electrolytically dissimilar metals is not allowed. Electrolytic corrosion must be prevented by insulating dissimilar materials from each other with gaskets, washers, sleeves, or bushings of suitable insulating material.
- 3.5.3 Aluminium: Aluminium alloy types 5086-H116 must be used for plate; aluminium alloy 6061-T6 or 6063-T54 for aluminum extrusions. Non-structural items of trim and outfit such as hatch frames, castings, consoles, and hardware items may be of other aluminium alloys suitable for commercial saltwater marine use such as dual rated 5083 / 86 or 5052 or 6063.
- 3.5.4 Stainless Steel: Stainless steel type 316L or 316 must be used for all stainless steel applications except as noted. Alloy 316L must be used in any welded underwater components.
- 3.5.5 Fittings and clamps must be stainless steel. Bolts used in all fittings must be Type 316 stainless steel.
- 3.5.6 Where flexible connections are required for steering and fuel systems, suitable hose with permanently crimped, detachable reusable type fittings must be used.
- 3.5.7 All materials and equipment must be stored installed and tested in accordance with the manufacturer's guidelines, recommendations and requirements.

### **3.6 FASTENERS**

- 3.6.1 All fasteners must be of corrosion resistant materials.
- 3.6.2 Cadmium plated parts and fasteners, including washers, must not be used.
- 3.6.3 Direct attachment of alloys containing copper to aluminium is not permitted except for an electrical bonding strap.
- 3.6.4 No fasteners must be directly threaded into Aluminum. Aluminium or Stainless steel washers or backing plates must be used as appropriate.
- 3.6.5 Where nuts will become inaccessible after assembly of the vessel, nuts must be captured or anchored to allow reassembly and prevent backing off. Unless otherwise specified, self-locking nuts must be installed to prevent loosening of fasteners due to shock and vibration.
- 3.6.6 Fasteners in deck traffic areas must be flush-mounted to eliminate tripping and snagging hazards.

### **3.7 FACILITIES (GRP lamination, Collar and Painting facilities)**

The Contractor must have a shop capable of maintaining temperature and humidity appropriate for temperature and moisture sensitive materials, painting and as applicable. It must be capable, when necessary, of maintaining temperature between 16°C and 25°C and maintaining relative humidity below 70%.

## **4.0 OPERATIONAL REQUIREMENTS**

### **4.1 GENERAL**

ISO Category B design. Unless otherwise stated, performance must be for conditions of zero sea state and no wind, in salt water in normal load condition. The boats must be designed and constructed for ease of maintenance and repair, long life, and are to be easily supportable in the location of the delivery address of the boat, by local commercial facilities and suppliers. The boat must be expected to have a service life of at least 10 years, with an expected usage of between 300 and 500 hours per year. Life cycle costing projections must be supplied by manufacturer with their proposal, particularly for hull, collar, propulsion, steering and other components and systems.

4.1.1 Maximum speed: 40 knots - 45 knots.

4.1.2 Minimum speed: 20 knots in sea state 6 with 30-knot wind.

4.1.3 Endurance: 35 knots for 4.5 hours.

4.1.4 Range: 200 nautical miles with 10% reserve at 25-knot minimum speed.

4.1.5 Steering: Capable of steering 15 degrees from heading, Beaufort force 7, with seas from any direction.

4.1.6 Steer and manoeuvre effectively at 3 knots in Beaufort force 7.

4.1.7 Maintain course, made good over ground, when proceeding at 3 knots with relative crosswind of 35 knots.

4.1.8 Capable of turning in its own length in Beaufort force 7.

4.1.9 Capable of steering effectively in Beaufort force 7 with winds of 30 knots while holding a 15 tonne (displacement) vessel in position.

### **4.2 BEACHING**

4.2.1 Capable of beaching on soft (sand, earth or clay) surfaces at a speed of up to 5 knots without damage to the hull.

4.2.2 Capable of beaching on hard (stone or concrete) surfaces at speeds of up to 3 knots without damage to the hull.

### **4.3 ENVIRONMENTAL CONDITIONS**

Capable of operating day or night in the following conditions:

4.3.1 Average ambient air temperature range: -10 ° C to + 30 ° C

4.3.2 Average water temperature: 0 ° C to +25 ° C.

4.3.3 Wave heights up to 7.5 meters (Beaufort Force 8).

4.3.4 Wind speeds of 34-40 knots.

4.3.5 Operate in freezing spray or freezing rain with accumulations of up to 6.0 mm while maintaining stability to allow for safe transit in Beaufort force 7

4.3.6 Required to operate safely in ice infested waters, (some minor damage to the craft not affecting stability or buoyancy will be acceptable).

### **4.4 LAUNCHING, RECOVERY & TRANSPORTATION**

The craft must be readily road transportable on a trailer, must be able to be launched and recovered using the trailer at existing launch ramps.

#### 4.5 MAINTENANCE

The craft must be designed and constructed for ease of maintenance and repair, long life, and be easily supportable by local commercial facilities and suppliers.

### 5.0 PHYSICAL CHARACTERISTICS

#### 5.1 VESSEL PARTICULARS

5.1.1 Length overall between 8.3 and 8.6 meters.

5.1.2 Breadth overall between 3.0 to 3.2 meters.

5.1.3 Maximum draft (outboard motors lowered) between 0.70 and 0.90 meters.

5.1.4 Maximum draft (outboard motors raised) between 0.50 and 0.70 meters.

5.1.5 Maximum freeboard (from top of collar AFT, in normal load condition) 0.70 meters.

5.1.6 Open Style; full beam deck between tube cradles

5.1.7 Open RIB that is not higher than 13.5 feet tall that has a radar arch that may fold to that height if necessary. Dual position shock seating at T-top console. Dual auxiliary fold up jump seats to be fitted behind the console seating.

5.1.8 Depth under Keel:

5.1.8.1 Operate carefully in depths of 1.0 meter with outboard motors lowered.

5.1.8.2 Basic manoeuvring in depths of 0.90 meters with outboard motors in the partially raised position.

5.1.9 Maximum height of collar above deck 0.60 meters

5.1.10 Displacement (Normal Load Condition) between 3100 kg and 3300 kg.

5.1.11 Normal load conditions:

5.1.11.1 Crew of 4 = 450 kg (Max capacity min 10 persons)

5.1.11.2 Fuel = 1000 liters in two tanks, (719 kg)

5.1.11.3 Equipment & supplies = 700 kg

5.1.11.4 Payload capacity to be Min 1000kg in addition to full fuel.

### 6.0 CONSTRUCTION STANDARDS

6.1 Boats constructed under this TSOR must comply with the following:

6.1.1 The current TCMS TP 1332 "Construction Standards for Small Vessels" and where applicable the American Boat & Yacht Council (ABYC), and

6.1.2 CSA C22.2 No. 183.2-M1983 (R1999) Standards for DC Electrical Installations on Boats and ABYC 'E' Electrical Standards.

6.2 **Transport Canada Marine Safety Regulation TP 1324 Coated Fabrics** as a minimum however, if the IMO requirements exceed those of TP1324, the more stringent of the two must take precedence.

6.3 **CSA W47.2-MI987: Certification of Companies for Fusion Welding of Aluminium;** Welding to be done by contractor with shop certified to this standard.

- 6.4 **CT-043-EQ-EG-001-E:** Welding of the hull and components must meet the requirements as identified in the Canadian Coast Guard Welding Specification, March 2014 edition. Supplied as a separate attachment to the TSOR.
- 6.5 Stability examination per TP1332 (from ISO standards 12217 and ISO 6185 RIB's over 6m) will require the Contractor to record all stability calculation and trial results and provide a copy for each boat produced, to be placed in the technical manuals.

## **7.0 VESSEL CONFIGURATION**

### **7.1 Open T-Top Vessel Configuration**

#### **7.1.1 General Deck Arrangement**

- 7.1.1.1 There will be at least 3 tie up points from bow to transom. One cruciform tow post forward, 2 cleats aft that are mounted to the transom corners or the self-righting frame.
- 7.1.1.2 Vessel will be outfitted with a lighting, and self-righting supporting arch, per section 9.9, including a supporting a lash back screen and tow reel with 100m of  $\frac{3}{4}$ " tow line. Contractor to identify location of tow post in relation to tow reel.
- 7.1.1.3 A dual position console, with four seating positions, two being located aft of the helm seating, must be integrated with a T-Top with windshield, and support radar and lighting, see below.
- 7.1.1.4 There will be a tow post fitted in the vicinity of the transom used for EMERGENCY towing, rated for 3000 lb. (1360 kg.), ahead of the thrust point of the craft taking into consideration the placement of the tow reel.
- 7.1.1.5 There will be two removable bow rails one on either side of the forward tow post used for boarding vessel. The bow rails when removed will not be a snagging (nets) or tripping hazard
- 7.1.1.6 Vessel must be fitted with aluminium protective pipe bracket, which extends around the outside of the outboard motors. This guard must be fabricated so as to be easily removed to facilitate the removal of the outboard engines.
- 7.1.1.7 There shall be three storage lockers forward of the T-Top. All storage lockers must have a drain of a large enough diameter that does not easily plug built into the hatch cover. All hatch covers and doors will allow for the door to open while a gloved hand is gripping the hand hold and that the hand hold can be locked with a pad lock.
- 7.1.1.8 First the bow locker that also secures the fuel filler must allow water to drain through to the bilge of the vessel but must be screened so that it does not allow gear or equipment to leave the compartment. The bow locker must be a minimum of 17" from front to back, 27" wide at the forward portion of the locker and 37" at the aft portion of the locker and as deep as possible that the hull will allow.
- 7.1.1.9 The second locker should be a freeman style hatch that creates the maximum storage space possible but must be screened so that it

does not allow gear or equipment to leave the compartment. The hatch will be 18 inches wide and 11 ¾ from front to back.

- 7.1.1.10 The third locker must be watertight to store dry goods equipped with a drain inside and be constructed in a way that allows water from the bow to pass underneath but not through the storage locker. The locker must have a drain in case water does enter the locker. The hatch for the locker should be a minimum of 41" from front to back and 21" wide. The locker must be a minimum of 56" from front to back and 40" wide with a minimum depth of 17".
- 7.1.1.11 There must be two self-draining (one sump and pump for both boxes) seizure lockers, one each P&S in the cockpit deck outboard aft. Size to be a minimum of 42 inches long, 11 inches deep and a minimum of 22 inches wide at the widest portion. With a hatch door that is able to hold itself open by a gas shock or equivalent option.
- 7.1.1.12 Vessel must be equipped with securing eyes fitted to the outside of the transom used for trailer tie downs, and bow eye for towing and trailer tie down.
- 7.1.1.13 Deck Davit: The Contractor must supply and install Safe-T Puller Light Commercial Model (Part #STP-2100) pot puller with 2.1 HP 12 volt electric power head, stainless steel self-grip sheave, air bellows foot switch and solenoid, 8 gauge wiring harness, 80 AMP circuit breaker, 2" schedule 80 aluminium davit, UHMW plastic sleeved side deck /cabin bulkhead bracket, and kick-plate bracket with stainless steel quick release pin. Secured to the t top when not in use and can lock in place with the pin. The davit arm and upper swivel portion must be removable and stowed in the largest below deck hold. The davit needs to be rated for a minimum of 500lbs.

## **7.2 Seated or Standing Console, with Windscreen and T-Top**

- 7.2.1 T-Top console to be constructed to low weight, high strength specifications from aluminium to withstand the accelerations of the vessel while in extreme service conditions. Successful construction methods presented include main console construction of 3/16" plate, braked at the corners, with tiered and/or sloped top surfaces for installation of controls and electronics. Alternate construction method using 2" schedule 40 pipe framing with plate panels filling the console and window faces is also commonly used. Weight and structural integrity are paramount concerns. The T-Top aft width from tube cradle to T-Top must allow sufficient space for water to rapidly drain aft from the forward cockpit.
- 7.2.2 The T-Top shall be at least 54" wide at the forward side, 62" wide at the aft portion of the console, the height from floor to top of the roof must be at least 81" high, and the length of the roof must be at least 84" long.
- 7.2.3 An overhead hinged console must be fitted with space adequate for two VHF radios, which must not protrude into the headroom of operators standing ahead of seating.
- 7.2.4 The operator console must have weather tight aft face access hatch below the console dash. There must be a weather tight hatch or door in the

- forward face of the main console to access the space below the console for electrical equipment and console electronics access. The inside of the door will have a storage bin mounted to the door with recessed fasteners.
- 7.2.5 Handholds of minimum  $\frac{3}{4}$ " schedule 40 pipe must be positioned on the aft, top edge of the upper console and across the forward face above the electronics access door. In addition, pipe rails must run up the outboard edges of the forward window frame, tilted away from centre so as to provide minimal visual obstruction to forward operators.
- 7.2.6 There must be a forward window and side windows on the console. The space on the console top must be long enough fore and aft so that there is a writing area at the navigation position, that is weather protected, the area must be large enough to have a writing surface for note taking and document writing and a hatch for a storage compartment that is a minimum of 17" wide and 15" from front to back and 10" deep. The compartment must be made to have a portion for legal hanging folders and the rest of the room for glove box style storage. Forward window to be equipped with bottom mounted, wide sweep, pantograph wiper system. The aft sweeping forward corner frames must also be equipped with air dams to control air and water "wrap" of the window corners. Dams to continue aft and direct water to the aft corners of the T-top. Side and aft pipe handrails must be provided on the T-top roof frame to provide handholds when standing on tubes or aft deck. These handrails to integrate with the forward window frame corner rails.
- 7.2.7 The T-Top must be supported at forward corners of the console top, and have sufficient strength to support the T-Top without additional support posts aft of the helm, with overhang aft sufficient to extend past the aft 'jump seat' positions.
- 7.2.8 The console must be fitted with a "sunbrella" cover, twist lock attachment to the overhead and hanging down immediately aft of the side windows and aft console corners, securing to the console. The purpose of the cover is to protect the console electronics from moisture and spray when the boat is travelling or unattended. The T-Top console to be constructed to low weight, high strength specifications from aluminium to withstand the accelerations of the vessel while in extreme service conditions. Successful construction methods presented include main console construction of 3/16" plate, braked at the corners, with tiered and/or sloped top surfaces for installation of controls and electronics. Alternate construction method using 2" schedule 40 pipe framing with plate panels filling the console and window faces is also commonly used. Weight and structural integrity are paramount concerns.
- 7.2.9 A seat cover must be constructed that will cover all four seats and keep them dry when the vessel is left in the elements.
- 7.2.10 T-Top sides must be flared out from front to back with aft corners coming next to tube cradle inner fastening channel allowing sufficient space for water to drain aft from forward cockpit area.

- 7.2.11 There must be a step fore and aft mounted to the T-Top on both sides to step up onto the tube set.
  - 7.2.12 Hand Holds – (to be a minimum of ¾” schedule 40 pipe)
  - 7.2.13 There will be a hand hold rail extending from above the side window, around the roof edge to the other side.
  - 7.2.14 There will be a vertical hand hold, each side, extending aft from the roof base down to the base of the side window.
  - 7.2.15 There will be a hand hold across the aft edge of the horizontal plane of the navigator position. The fastening base of this hand hold will extend from side to side under the hand hold.
  - 7.2.16 There will be a hand hold on each side, below the side window, extending from front to back on side of T-top.
  - 7.2.17 There is to be a vertical hand hold extending the full height of the windshield, tilted away from the center so as to provide minimal visual obstruction to forward operators.
  - 7.2.18 There will be a hand hold extending across the full width of the front of the T-Top, positioned above the forward door allowing sufficient space for the door to open while a gloved hand is gripping the hand hold.
  - 7.2.19 A large lockable ‘glove box’ locker to be fitted in the T top console.
- 7.3 Horizontal top surface of console.**
- 7.3.1 The surface shall be sufficient in size to allow for a laptop computer station to be installed in front of the helm position.
  - 7.3.2 The surface area in front of the navigator position shall be sufficient in size for the following:
    - 7.3.2.1 A writing area sufficient in size for a note book binder;
    - 7.3.2.2 A lockable glove box. This will extend down below the writing surface and be divided in two. One area will be designed to support hanging legal file folders and the other area large enough for storage of different items, i.e. note books etc; and
    - 7.3.2.3 Above the console will be a communications area housing the different electronics. The electronics are to be accessible by the helm and navigator.
  - 7.3.3 There will be overhead red LED (4) and white LED (4) lights positioned over the console. There is to be red LED (4) and white LED (4) lights over the two aft seat positions. The red lights are to be dimmable.
  - 7.3.4 There is to be 2 LED lights installed inside the T-top storage compartment.
  - 7.3.5 There is to be space for a David Clark control head and also head set hangers installed on underside of the T-Top roof. The hangers must be located above each seat centred so that they can be easily hung up and must not fall off if the vessel is being operated in rough weather. The top roof portion is to have a continuous water dam which will extend from the front along the side and across the back continuing along the other side to the front. This dam is to be attached in a manner that will not allow water to leak underneath.
  - 7.3.6 There is to be two drains, one each corner of the aft roof just forward of the water dam. These water drains will take water down from the roof and

discharge it on the deck at the bottom of the T-top (integrated into hand holds).

- 7.3.7 Foot rail. The standard will be that there is an aft face door, the foot rail will need to be configured to meet the above requirements of use, and, allow for the door to open to a minimum of 90 degrees. If there is no door there can be one continuous foot rail from side to side on the aft face of the T-top.
- 7.3.8 The Throttle wedge must have removable covered padding that matches the covering on the seats attached that will cushion the impact of the crew min 1 inch thick.

#### **7.4 Access doors into T-top.**

- 7.4.1 There is to be a large, lockable (w/padlock), access door into the forward face of the T-top. This door is to be weather tight and the locking latch handle is to be of sufficient size to be operated with a gloved hand. The door is to have a pneumatic shock to have the door held steady in the open position. The inside of the door will have a storage bin mounted to the door with recessed fasteners. This door will be hinged on the port side and open towards the port side towards the gear hauler post. The door may have a catch mounted to the davit post and the door to keep it open.
- 7.4.2 There will be a smaller lockable access door in the aft face of the T-top below the console. This door is to be weather tight and the locking latch handle is to be of sufficient size to be operated with a gloved hand.
- 7.4.3 The windshield for the T-top is to have a Category B rating and will be in the appropriate metal frame.
- 7.4.4 Windshield washer tank and sprayer on front windshield.
- 7.4.5 Side windows will be in metal frames.
- 7.4.6 There is to be a bottom mounted windshield wiper of the pantograph style. This control for this wiper will also have a deal function.
- 7.4.7 The T-Top is to be fitted with a "Sunbrella" type material which will be fastened from each side around the back. This will extend from the roof of the T-top to the deck. It is to be fastened with twist locks and grommets that do not come in contact with dissimilar metals. The upper part of the Sunbrella enclosure will have clear plastic panels allowing the helm side and aft visibility. Each side is to have a large zipper door, that when unzipped can be rolled up and securely fastened in the up position. The same will apply to the aft section of the enclosure allowing it to be unzipped and rolled up and fastened.

#### **7.5 Seating and Stand- up Operation**

- 7.5.1 Two shock mitigating seats are required with two additional rear, forward folding jump seats behind the operator positions. Aft seats to be jockey style with pommel pipe handhold and secure footrests, the rear seats must be two Shockwave S2 Jump seats with arm rests and seat belts. When the seats are in the folded upright position it should still provide a hand hold for a person should they choose to stand.
- 7.5.2 Forward seating to be 'Shockwave' G-Force type seats with height and slider adjustment, on stands, with fold up seat edge to act as support for operators when folded up and driving in a standing position. Seats to have spring loaded footrests, folding arms, and seatbelts. The seat base must

be wide enough to have the forward seats positioned in line with the foot rest in both the helm and starboard seating position inside the T-Top.

7.5.3 The seat mounting area to be suitably reinforced and framed to support the full G-load capability of the shock mitigation seating.

7.5.4 The seating bases, if any, are to be equipped with lockable stowage if adequate space is available. Seat base slider must be used to facilitate equal facility to use console equipment in seated or standing position.

7.5.5 Seats must be designed to support a person of 150 kg.

#### **7.6 Console Lighting**

7.6.1 There must be a red chart lamp on the communications side of the console, for the navigator with switch, and dimmer.

#### **7.7 Foot Rests**

7.7.1 There must be pipe foot rest(s), servicing forward positions at the console, for use when standing while operating. Foot rests and seats are to be such as to allow clearance for legs so that they do not have to be angled in order to place your feet on them while in the seated position.

#### **7.8 Console Utilities**

7.8.1 There is to be a 30 AMP shore power connection, complete with breaker and an electrical outlet inside the T-top.

7.8.2 There is to be a battery charger, with a minimum of 3 banks and 20 AMPs to charge batteries.

7.8.3 Battery connections will be arranged for cross connection of start and house batteries and for charging by motors and shore power when plugged into shore power.

7.8.4 All switches mounted on the dash and overhead communications panel shall be waterproof.

7.8.5 Main switch panel shall be of the waterproof and breaker style with a minimum of two spares.

7.8.6 All gauge back lighting shall be dimmable. Compass must be on a separate dimmable switch.

7.8.7 The T-Top must be equipped with a diesel heater (water heat piped from transom) capable of heating the windshield and the enclosed T-Top area of the vessel with a 20% reserve BTU rating; model 10DW ESPAR or equal.

7.8.8 Outlets from the diesel furnace must be located min. 2 in the aft face of the T-Top both port and starboard sides below the dash and 4 min facing the windshield.

7.8.9 The front windshield defroster(s) and heater must have a variable three-speed fan and be capable of clearing the entire front windshield area of the vessel. Heater switching and defrosting controls to be mounted on the dash, navigator's position.

7.8.10 The front windshield defroster must be capable of blowing both cold and heated air.

7.8.11 The fuel reservoir for the furnace must be approximately 10 litre capacity, (with marked diesel fill near lazarette box that must be lockable). (Lazarette box doors must be lockable with a pad lock and able to be opened with a gloved hand.

- 7.8.12 Compass, map light and red LED lights shall be dimmable
- 7.8.13 All switches are to be labelled
- 7.8.14 Fuses and breakers are to be labelled
- 7.8.15 Two charging 12 volt USB ports shall be provided on the dash.

#### 7.9 **Dash / Helm Station**

- 7.9.1 The Helm station will be on the Port side of the console, with controls on center.
- 7.9.2 The helm will incorporate a steering system, capable of handling the horsepower of the vessel, with manufacturers' engine controls designed for the power units.
- 7.9.3 There will be provision for an array of control gauges and electronic equipment at the helm position, see electronics section 8.7.
- 7.9.4 In addition, if not included with above gauge package, outboard trim gauges, and fuel level gauge(s) will be installed.
- 7.9.5 There will be a console mounted magnetic compass.
- 7.9.6 All lights switches and breakers must be within easy reach of the helmsmen.
- 7.9.7 In addition to the factory supplied individual propulsion leg trim controls there will be a SYNCRO trim switch to integrate the outboard controls on one switch.
- 7.9.8 Space required for future additional installations, e.g. for trim tab controls.
- 7.9.9 On either side of the throttle wedge there will be padding to avoid contact from legs resting on the foot rails while in the seated position.

#### 7.10 **Navigation Lighting and Equipment:** LED options must be used where available

- 7.10.1 Blue and blue, mini light bar (Tomar 970L scorpion or equal) to be installed above the radar scanner, and to be approved by DFO TA.
- 7.10.2 Whelen Siren c/w Speaker to be mounted to the T-Top.
- 7.10.3 The Contractor must supply and install an electric horn that meets the requirements of the Collision Regulations. The horn must be operated by a spring-loaded switch located on the operators' console. The "Signaltone", or Ongaro electric horns meet this requirement.
- 7.10.4 Navigation lights must be permanently fitted to the T-Top with protected wiring and must be waterproof. The fitting of a combined navigation sidelight lantern on the inflatable collar will not be acceptable. All around mast /anchor light ratchet mast mounting is acceptable.
- 7.10.5 The fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage that may occur when lying alongside a vessel or a pier. (The Hella NaviLED Series of lights, including the NaviLED 360 all-round light , and NaviLED side lights meet this requirement.)
- 7.10.6 Non-white lighting must be wired together on a separate breaker of the 12 volt DC electrical system. All around Mast /Anchor light showing clear above the radar scanner as per TP 1332. One three way rocker switch, labelled "NAV" which turns on all Nav lights. When switched to the "ANC" side, only the anchor light is on.

- 7.10.7 Magnetic Compass: The Contractor must provide and install a direct read compass, with light and its own dimmer switch. (The Ritchie Helmsman 70 series meets this requirement.)

## **8.0 CONSTRUCTION**

- 8.1 Aluminum hull, deck, console and T-top.
- 8.2 Structural Integrity - All structures and components (hull, deck, collar, console, seating, etc.) must be of sufficient strength to withstand, when in a Maximum Load condition per builders' plate, the lateral and vertical impact loading that equates to the conditions of the operational profile and mission requirements.
- 8.3 Hull shape must not impede water flow to the propulsion units and must direct spray and waves away from onboard personnel.
- 8.4 Watertight and Tank Bulkheads: The hull design must be such that a sufficient number of watertight compartments, including hull compartments, and/or low smoke and flame spread closed cell flotation foam, or fire retardant flotation, or flotation devices, will allow for adequate stability and positive buoyancy in a flooded condition. See references to vessel certification, re: TP 1332 / ISO testing.
- 8.5 Hull and Deck: The hull, and deck, must be constructed of Aluminium. Aluminium materials must be per Sec 3, Material and Construction
- 8.6 The hull is to be a minimum 24 degree (transom) dead rise "V" style monohull with a reverse chine flat and hull bottom to incorporate minimum one substantial (~1.5" vertical, aft, located approx. mid bottom panel) or a combination of smaller spray strakes on the bottom, per side, which run out to the stem. Dead rise at 25% aft to hull transom from the main chine at stem must be minimum 32 degrees.
- 8.7 The hull and decks are to be transversely framed and longitudinally stringered (minimum of four per side).
- 8.8 HULL AND DECK**
- 8.8.1 The T-Top must be fitted leaving sufficient unobstructed forward deck space to allow for securing a basket litter or similar device, with sufficient access alongside the device to carry out First Aid to a patient within. Sufficient unobstructed space must remain aft of the T-Top and seats to provide safe access to towing arrangements and propulsion equipment.
- 8.8.2 The layout of the T-Top must take into account ergonomic considerations, with easy viewing and access to all critical instruments and controls.
- 8.8.3 The deck to have high capacity, 4" dia. minimum, self-draining ports, and must be fitted with mechanical closures for the drains to prevent water ingress while the vessel is stopped, (elephant trunk style)..
- 8.8.4 The deck above the watertight compartments must have bolted watertight centerline access plates / hatches for easy removal to allow for repair of tanks or buoyancy compartments beneath, and separate access plates for inspection access to the fuel system components as per TP 1332.
- 8.8.5 Buoyancy Foam- Must be Fire Rated (FR), or Low Smoke and flame spread, closed-cell foam installed to perform the required stability functions and

isolated from fuel tank spaces by main girders or bulkheads with any foam accesses through these members closed by cover plates.

8.8.6 Fuel tank spaces to have ventilation flow through from bow to stern (ignition protected fan assist on start-up).

8.8.7 The deck is to have 4 lifting lugs that are out of the way of traffic and not a trip hazard.

8.8.8 Flush mounted deck tie downs must be fitted on the Tube Cradle in the forward deck area for the securing of deck cargo. (Minimum of 4 required.)

## 8.9 STOWAGE

8.9.1 Arrangements must be provided for safe, secure and accessible stowage of an anchor, chain and rope, cable, paddles, and other equipment.

8.9.2 Weather tight stowage for small items of equipment must be provided in void spaces beneath seats, T-Top, and where practicable.

8.9.3 All exterior stowage compartments must be lockable with a pad lock, secured by positive means and operable by gloved or insensitive hands.

8.9.4 The configuration of these holds are explained in greater detail in sections 6.2.1.7 to 6.2.1.11.

## 8.10 BEACHING SHOE

General description - Aluminum.

8.10.1 The bow must be constructed with aluminum armouring to allow hard rock beach landings while in a swell. It must protect the hull from damage when landing at low speeds.

8.10.2 Length - full length - from transom to underside of chine flat at bow.

## 8.11 BOW EYE

8.11.1 A system is to be designed and incorporated into the construction of the stem that allows for the bowline and or trailering hook to be attached to the bow. The fitting must be T316 stainless steel and of sufficient strength to allow for towing the vessel at a speed of 20 knots in calm water in the normal loaded condition, on an even keel without damaging the vessel or causing undue chafing of the towline.

## 8.12 TOW POSTS

The tow posts are to be stamped and highlighted with the Safe Working Load (SWL) of each post, clearly visible.

8.12.1 One tow post, for EMERGENCY towing, with towing bitts must be fitted aft, rated for 3000 lb. (1360 kg.), it must be mounted in the transom to save deck space.

8.12.2 One removable cruciform tow post (tow capacity 3,000 lb. minimum) is to be fitted at the bow.

## 8.13 COLLARS

8.13.1 Collar must be an inflatable type 24" diameter with at least 5 separate chambers of approximately equal volume, each fitted with a suitable inflation system and over-pressure relief valves calibrated to 3.5 psi. (the Halkey Roberts model 690BV inflation valve and the Mirada model B51019 3.5 psi over pressure relief valve, meet this requirement).

8.13.2 Inflatable collars fitted must be constructed of material that meets the criteria for strength, elasticity, resistance to wear and longevity as defined

- in TP 1324. Collar material must meet a minimum strength requirement of 1880 Decitex Neoprene / Hypalon coated nylon fabric and must be Neptune or Military grey in colour.
- 8.13.3 Inflatable collars must be attached to the hull using mechanical fasteners in such a manner that the collar can be easily removed for repair or replacement. The use of screws and lag bolts or glue-on type collars is not acceptable.
  - 8.13.4 The inboard side of the tube, from the fastening flange up to the grab line flange is to be covered with a black EDPM from the front port side of the T-Top all the way around forward to the starboard side of the T-Top.
  - 8.13.5 Collar to be supplied with two pair of step treads (EPDM or eq.) installed in way of the cockpit access and a transom tube tensioner.
  - 8.13.6 Inflatable collars must be provided with minimum 5 protective black wear strips all around, of extruded neoprene rubber, or equivalent, rubbing strakes (minimum 75mm wide, 'Bombard' style) to be glued along the entire length of the outboard side of the collar to provide protection against abrasion and puncture. The bottom of the inflatable collar wetted surface of the tubes must have a protective layer of material installed. (EPDM or equivalent.)
  - 8.13.7 Grab lines of non-twisting nylon braided rope construction ½" diameter, must be fitted along the collar on both the port and starboard sides to provide access from both within the boat and for persons in the water. Grab lines must be mounted on the centreline of the collar, by means of a lacing cuff (not by D-Ring attachment).
  - 8.13.8 Mechanical fastening of the tube set above the head log must be done with flush mounted fasteners. In addition, a piece of "D" rubber, the length of the head log is to be used at the base of the tube fastening. This will prevent a pinch point of the tubes. Should the bow section be placed against a solid object.
  - 8.13.9 A repair kit must be provided for inflatable collars.
  - 8.13.10 All seams are to be hand buffed and glued
  - 8.13.11 Polyurethane sealant should be used on all interior seams and baffle edge.
  - 8.13.12 Foot pump, with correct valve fitting to be supplied (bellows type, for floatation collar.
  - 8.13.13 A protective cover on the bow which will extend over the outer tube and extend from the bow to the down each side to opposite to the aft face of the bow. This cover is to be mechanically fastened at the bottom and fastened to the grommet strip (lacing cuff) at the top. . It should wrap the bow (collar only) from collar top centerline to collar/hull joint and extend approximately 4' (1.25M) aft down each side of the collar.
  - 8.13.14 An operator activated semi-auto inflation system must be installed, to manually direct optimal inflation of all chambers. System must have hard plumbed manifold, with pressure gauge, and selection valving for chamber, and pressure valve for directing filling at up to 5 PSI. System to have a manual, ball valve actuated deflation of all chambers, operable from inside

the T-top and discharging to exterior of cabin. 12 volt compressor to produce pressure and flow rate to inflate, all chambers being open, in 10 to 15 min. Pipe threaded outlet and filtered air intake required.

## **9.0 OUTFITTING AND EQUIPMENT**

### **9.1 LIFTING**

The vessel must be equipped with a four-(4) leg, webbing lifting bridle, which may require a spreader bar. The location and arrangement of lifting gear must be such that it does not pose a safety hazard to the operator or crew nor interfere with boat operation.

- 9.1.1 All bridle lifting lugs must be reinforced and proof tested in accordance with CSA Tackle Regulations and must comply with IMO regulations for 6:1 safety factors.
- 9.1.2 Lifting points must not be located below the deck or within lockers or compartments. Lifting points must be located in such a manner that they are out of traffic areas and are not a tripping or snag hazard.
- 9.1.3 Lifting points must be located so that the bridle does not snag on the boat structure, outfit or machinery.
- 9.1.4 Lifting slings provided must be webbing strap type certified to safely lift the vessel in the Normal Loaded condition. Test margin 200% for four straps, or per CSA if higher standard.

### **9.2 ELECTRICAL**

The electrical system design, component selection and installation must be in accordance with Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats", and TP1332 and/or ABYC 'E' as referenced by TP1332. All electrical equipment and hardware must be installed in accordance with the manufacturer's specifications

- 9.2.1 Twelve Volt (12V) DC distribution system must be provided to power the engine starting and boat service loads including:
  - 9.2.1.1 Navigation lights;
  - 9.2.1.2 Exterior Lighting;
  - 9.2.1.3 Navigational equipment;
  - 9.2.1.4 Instrumentation;
  - 9.2.1.5 Bilge Pumps;
  - 9.2.1.6 Electronics; and
  - 9.2.1.7 Communications
  - 9.2.1.8 Ancillary Items
- 9.2.2 All fitted electrical equipment must be capable of operating simultaneously with any other fitted electronics equipment without causing interference to any electronic equipment or to the magnetic compass.
- 9.2.3 All electrical equipment must be readily accessible for performing maintenance.
- 9.2.4 Four (4) marine quality 12V power outlets one must be installed at or near the bow locker, one on the front of the T-Top, one on the back side of the T-Top console and one on the Lazerette near the transom. There

must be two USB charging ports on the dash that are water resistant or covered.

### 9.3 BATTERIES, CABLES, AND CHARGING SYSTEMS

Twelve (12) volt DC distribution system must be provided to power the engine starting and boat service loads including:

- Navigation, interior, and exterior lighting;
- Electrical equipment;
- Instrumentation, and
- Bilge pumps and alarms.

9.3.1 Batteries must be marine grade, 12 V, deep cycle maintenance free glass mat or gel type(no custom batteries), and with the ability to cross connect for twin-engine start-up of either engine from either battery where the system has a house battery in addition to the start batteries, the house battery shall be able to be joined to the start batteries if necessary. Some engine packages may require larger capacity for injection systems, see Sec.17, Outfitting.

9.3.2 Battery switch must be Certification Agency, (CE, CSA, USCG, etc.) approved and must be mounted to prevent snagging or accidental switching.

9.3.3 Battery compartment must be weather tight and fitted with a suitable means of gas venting including for 'sealed' batteries.

9.3.4 Cables for all electrical distribution must be ample in size for the particular service, of marine grade tinned boat cable.

### 9.4 Cabling Installation

9.4.1 Cables must be grouped into wiring harnesses wherever possible. All wiring harnesses must be routed below deck. All below deck cabling must be through conduit pipe.

9.4.2 Cabling / conductors passing through watertight boundaries, decks, bulkheads or other exposed surfaces must be installed to maintain watertight integrity of the structure. Cable entry into watertight enclosures must be through watertight marine glands of suitable size. All electrical equipment must be readily accessible for performing maintenance.

9.4.3 Cables and conductors must be supported with clamps or straps at least every 18 inches on horizontal runs and every 14 inches on vertical runs.

9.4.4 Cabling / conductors passing through structures without watertight glands, must be protected against chafing by the use of abrasive resistant grommets.

9.4.5 Routing cables through foamed spaces must be avoided wherever possible. Cables that must be routed through foamed spaces must be run in PVC conduit pipe. The pipe must be arranged in a manner that prevents water from becoming entrapped in the pipe.

### 9.5 BATTERIES, CABLES, AND CHARGING SYSTEMS

9.5.1 (2) Dedicated starting batteries for the outboard engines. Dual-battery system, minimum 750 cranking amps with dual-battery selector switch

mounted in a recessed position that conforms to engine manufacturer's specifications.

9.5.2 One (1) battery for the house load, minimum 55 Ah/120 minute reserve capacity;

9.5.3 The starting batteries and the house battery must be positioned in the T-top console with a cover for each the three batteries. All Batteries must be group 27 or better Glass Matt or Gel. Batteries must be readily available commercial product (No custom batteries)

#### **9.6 UTILITY LIGHTING- ALL LIGHTING IS TO BE LED POWER MANAGEMENT IS CRITICAL DUE TO VOLUME OF ELECTRONICS**

9.6.1 Contractor must supply two (2) handheld search lights for the vessel. Each light must be 12 volt and must produce 1 million candela. Four 12V power points required, one each on forward face, and dash (communication side) of console, and near the tow post forward, and at the transom.

9.6.2 The LED deck flood lights (6 of) of be fitted on the T-Top of the vessel, 2 facing towards the bow on the front corners, 1 each facing to the port and starboard and 2 facing towards the rear. Rigid brand or equivalent.

9.6.3 Tube cradle/ console (6) mounted LED deck illumination lights switchable from white to red.

9.6.4 There will be overhead red LED (4) and white LED(4) lights positioned over the console . There is to be red LED (4) and white LED (4) lights over the two aft seat positions. The red lights are to be dimmable.

9.6.5 Two recessed bow lights that are spot /flood combination made by Rigid or equivalent. To be place on either side of the bow below the tube set angled for slower speed travel 20-24 knots. Lights must not protrude from the hull and be waterproof.

9.6.6 Blue and blue, mini light bar (Tomar 970L scorpion or equal) to be installed above the radar scanner, and to be approved by DFO TA.

9.6.7 Whelen Siren c/w Speaker to be mounted to the T-Top.

9.6.8 The Contractor must supply and install an electric horn that meets the requirements of the Collision Regulations. The horn must be operated by a spring-loaded switch located on the operators' console. The "Signaltone" or Ongaro electric horns meet this requirement.

9.6.9 Navigation lights must be permanently fitted to the T-Top with protected wiring and must be waterproof. The fitting of a combined navigation sidelight lantern on the inflatable collar will not be acceptable. All around mast /anchor light ratchet mast mounting is acceptable.

9.6.10 The fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage that may occur when lying alongside a vessel or a pier. (The Hella NaviLED Series of lights, including the NaviLED 360 all-round light , and NaviLED side lights meet this requirement.)

9.6.11 Non-white lighting must be wired together on a separate breaker of the 12 volt DC electrical system. All around Mast /Anchor light showing clear above the radar scanner as per TP 1332. Two switches to be provided, labelled: Nav masthead / anchor and Nav sidelights.

- 9.6.12 Magnetic Compass: The Contractor must provide and install a direct read compass, with light and its own dimmer switch. (The Ritchie Helmsman 70 series meets this requirement.
- 9.6.13 Progressive dimmers of marine grade must be fitted wherever practicable, with the capability of dimming engine monitoring gauges if they are not dimmable by the manufacturer's controls and other indicators separately from compass illumination.

## **9.7 NAVIGATION ELECTRONICS**

This vessel must be constructed for contractor installation of the following Contractor Supplied electronics navigation package, with displays located across the forward dash, in addition to the Col regs required equipment. Arrangement to be approved by the Technical Authority.

- 9.7.1 NSS 16 EVO 2 Touch screen MFD, Built in Broadband/Chirp/Structure scan sounder, 10Hz GPS, HDMI video output. Mounted in navigator position.
- 9.7.2 NSS 12 EVO 2 Touch screen MFD, Built in Broadband/Chirp/Structure scan sounder, 10Hz GPS, HDMI video output. Mounted on pedestal between rear and front seats.
- 9.7.3 4GBroadband Radar for Simrad NSO, NSE and NSS series includes Scanner, scanner cable 20m (66 ft), R110 interface box, Yellow Ethernet cable- 1.8m (6ft)
- 9.7.4 Airmar SS60 600W Thru Hull 50/200Khz
- 9.7.5 LSS-2 transducer and 10ft extension.
- 9.7.6 NAIS 400 AIS transmit/receive/ gamss 2 Antenna
- 9.7.7 NEP-2 Network Expansion Port
- 9.7.8 NMEA2000 starter kit x2
- 9.7.9 Navionics Gold 2XG Canada and US Charts
- 9.7.10 ENET cable to join units together
- 9.7.11 GS25 antenna/N2k Kit (for radar overlay)
- 9.7.12 Furuno GP32 independent GPS for the lap top.
- 9.7.13 GX2200 VHF with Hailer speaker to be installed.
- 9.7.14 Externally Mounted EPIRB ACR RLB-35 mounted on the rope guard screen on the self-righting arch.
- 9.7.15 Flir M625L, thermal imaging to be supplied and installed with interface to the operator screens.
- 9.7.16 Loudhailer with siren multifunction.
- 9.7.17 Whelen Siren and Speaker mounted to T-Top.
- 9.7.18 CF-31 Panasonic Toughbook with Nobltec location to be approved by the TA.
- 9.7.19 Laptop cradle Havis DS-Pan-112-2
- 9.7.20 GSM installation equipment:
- 9.7.21 Space and electrical capacity to be provided for a GSM Radio, Astro XTL 5000 with 03 Control head.
- 9.7.22 Location to be arranged for Laptop cradle and power supply for laptop, GSM intercom system to be installed by contractor, David Clark System.

## **9.8 PUMPING AND DRAINAGE**

- 9.8.1 An electric bilge pump with 2000 gph capacity must be fitted in the main hull or largest watertight division as well as a fixed manual operated bilge pump of the diaphragm type. The bilge pump(s) must be located so that they take suction from the lowest point of the hull. Piping must be installed which will allow the bilge pump(s) to discharge directly overboard. Any additional watertight division of the hull will be serviced by a bilge pump of 1500 GPH capacity. The wire gauge for all bilge pumps must be a minimum of 10 gauge.
- 9.8.2 An automatic level sensor control must be fitted that turns on the electric bilge pump (Non-Pedal type) when water is present in the bilge. The electric bilge pump control switch must be located on the operator's console, with settings for 'momentary on', 'off', and 'automatic' operation. An indicator light must be provided at the control that lights when the bilge pump is operating.
- 9.8.3 High water alarm for the engine installation space, which could be the 'pod' for outboards, and every other space serviced by a bilge pump.
- 9.8.4 Hull drainage - a brass or stainless steel threaded plug must be provided in the lowest point to drain the hull when out of the water.
- 9.8.5 Valves and handles must be made of non-corroding materials and must be located where they are readily accessible for operation, maintenance or removal.
- 9.8.6 A raw water wash-down pump must be located in the lazarette with a hose that can be concealed in a self-contained unit. The pump must be switched to the operator's position on the dash.

## 9.9 SELF RIGHTING SYSTEM

- 9.9.1 Self-righting system of proven design must be installed by certified self-righting system technician.
- 9.9.2 The self-righting system must employ a re-useable bladder and be a manually activated, self-righting system that will right an inverted RIB in no more than 15 seconds in air temperatures no less than -20° C.
- 9.9.3 The bladder must be stowed deflated in a quick release enclosure on the arch.
- 9.9.4 The framework must be constructed of materials and in such a manner to allow for a ten year lifespan without failure under normal operating conditions. At a minimum the materials must be made of 2" Schedule 40, type 5086 alloy.
- 9.9.5 A recovery line of at least 10M must be fitted to the engine guard, on the port side.
- 9.9.6 The activating handle will be located on the port side so that it is above the waterline when the boat is upside down.
- 9.9.7 The system must be a compressed air system fitted with suitable over pressure relief valves and an inflation valve c/w a gauge mounted on the valve. (The Mirada series 5000 firing head and gauge meet this requirement.)
- 9.9.8 The air bottle should be manufactured out of a rugged material that can withstand severe operating conditions. (The bottles Manufactured by

Structural Composites Industries (SCI) and made of high pressure (4500 p.s.i.) GRP wrapped aluminum meet this requirement.)

([http://www.scicomposites.com/custom\\_cylinders.html](http://www.scicomposites.com/custom_cylinders.html)). The bottle must not be mounted on the self-righting frame but rather in an area which is well protected from the elements but will still allow for ease of service and viewing of the pressure gauge.

9.9.9 Any ancillary equipment fitted to the self-righting cage must not interfere with the efficient operation of the self-righting system.

## **9.10 LIFESAVING EMERGENCY EQUIPMENT**

The following items must be provided with appropriate stowage / securing arrangements (as appropriate for each item). All CFM fittings must be heavy duty, corrosion resistant fittings. All items must be readily accessible (the foot pump and the repair kits must be stowed in a stowage locker). The Contractor will supply and outfit the boat with the following emergency equipment:

- 9.10.1 Fire extinguisher (Class 5BC, marine type or better);
- 9.10.2 Boat hook, 8 feet long (retractable);
- 9.10.3 2 paddles secured to the tube cradle as far aft as possible;
- 9.10.4 Anchor (Fortress model 7X or equivalent) and line with chain;
- 9.10.5 Drogue sea anchor and line;
- 9.10.6 Four (4) 25-foot ½" braided nylon mooring lines
- 9.10.7 Collar patch kit (for inflatable collar);
- 9.10.8 Hull repair kit;
- 9.10.9 Foot pump (bellows type, for floatation collar);
- 9.10.10 One (1) water proof LED flashlight w/ spare batteries and bulb;
- 9.10.11 One (1) pealess whistle;
- 9.10.12 TC approved First aid kit in waterproof container;
- 9.10.13 Two (2) buoyant rescue quoits attached to 30m of buoyant line;
- 9.10.14 Three (3) Thermal protective aids;
- 9.10.15 Radar reflector, Mountable on cage, tube style;
- 9.10.16 Six (6) TCMSB approved flares, type A.B.C;
- 9.10.17 Buoyant safety knife with sheath and blunt tip.

## **10.0 PROPULSION – Twin Outboards**

### **10.1 GASOLINE OUTBOARDS**

Unless otherwise specified, outboard motors ONLY will be GOVERNMENT SUPPLIED MATERIAL (GSM) and Contractor installed. Twin Yamaha 300 HP 4 stroke engines, one engine counter rotating. The outboards must be installed and operated in accordance with the engine manufacturer's recommendations. The use of engine manufacturer's approved accessories and equipment is required except for motor control cables (which must be manufacturer's best quality cables). Equipment and components must not be used, nor Sea trials performed on the engines that would, in any way, void the engine manufacturer's warranties.

- 10.1.1 Outboard motors should be mounted as far apart as practicable.
- 10.1.2 Outboard motors must be mounted as per manufacturer's instructions.
- 10.1.3 The port outboard drive must be counter rotating.

- 10.1.4 Contractor to supply and install all digital gauge packs and associated equipment for the Outboards identified.
- 10.1.5 The Contractor must have the engine manufacturers' service agent inspect and verify the installation prior to trials and shipping.
- 10.1.6 Control cables, harnesses, propellers, and all other components will be Contractor supplied and installed.
- 10.1.7 Propulsion controls to be a single lever per engine with trim switches and syncro. The throttle box/wedge should have padding on either side to protect the operator's knees when in the seated position.
- 10.1.8 Propellers are Contractor supplied and must be stainless steel. The Contractor must identify, through calculation the pitch and diameter of the propellers to meet the Performance Requirements specified herein. This calculation will then be supplied to the Technical Authority upon completion of the contractors design check.
- 10.1.9 Kill Switch - Engine installations must incorporate an automatic shutdown feature (kill switch) for each engine to be mounted near the ignition switches. There must be one kill switch that kills both engines. Two (2) spare cords must be provided with each boat.
- 10.1.10 If the engines are mounted directly on the transom, the hull is to incorporate an integrated motor well into the hull-deck design, with tube support to the transom.
- 10.1.11 Run-in operation: The Engines must be installed and operated in accordance with the engine manufacturer's recommendations. The use of engine manufacturer's approved accessories and equipment is required. Equipment and components must not be used, or trials performed on the engines that would, in any way, void the engine manufacturer's warranties. The engines must have a minimum of 10 hours prior to delivery.

## **10.2 OUTBOARD MOTOR GUARD**

- 10.2.1 A guard made of welded 2" schedule 40, type 5086 aluminium pipe must extend out and around the outboard motors to protect them from impact. This guard must be fabricated so as to be easily removed in order to facilitate the removal of the outboard motors. The guard shall not extend past the transom more than is necessary to provide protection of the motors with minimal excess space between the motors and the motor guard.

## **10.3 PROPULSION CONTROLS**

- 10.3.1 Unless otherwise specified, gauges must be analogue-style, or Engine Manufacturers' digital equipment. Gauges must be sized and installed so they are readily visible by the operator while operating the boat.
- 10.3.2 All gauges must be backlit with an adjustable dimmer. Lighting for gauges and lighting for compass must use separate dimmers.
- 10.3.3 Propulsion control system installation must include single-lever combined engine control, for each engine, to be located at the operator's position on the starboard side of the control station. Controls must conform to engine manufacturer's recommendations for commercial use.

10.3.4 The Operator's position must be fitted with a lanyard style emergency shutdown switch which is attached to the operator and must shut down both engines if the lanyard is pulled from the switch.

#### **10.4 FUEL SYSTEMS**

##### **ALL FUEL SYSTEM HOSES TO BE USCG A RATED**

- 10.4.1 Fuel systems must meet with all requirements of TP 1332 "Construction Standards for Small Vessels", which reference the ABYC standards. Regardless of interpretation of TP 1332 requirements, below deck fuel tank compartment MUST have both passive and powered bow to stern ventilation system installed with clearly labelled switch at the helm.
- 10.4.2 The vessel must be fitted with two (2) fuel tanks with baffles, to be located under the deck for a total capacity of minimum ONE Thousand (1000) litres.
- 10.4.3 There must be inspection hatches (8") in the deck, to allow access to the fuel pick-ups, (with the required 'demand anti siphon' valve at the tank if flow rates meet the manufacturer's requirement), vent, and fill connections, and tank level indicators.
- 10.4.4 Arrangements must be provided for fuel tank and associated lines, vents, fills, and on / off valves, to be fitted to the boat.
- 10.4.5 Fuel lines from the required inboard shutoff valve or manifold to the outboard motor(s) to be protected against chafing and wear.
- 10.4.6 A fuel / water separator filter is to be mounted "in-line" to each engine with easy access to drain the sediment bowl.
- 10.4.7 Fuel shutoff maintenance valves are to be installed at filter/ manifold system and be easily accessible by vessel operators.
- 10.4.8 Fuel fills and vents to be located at forward bow locker location (other than diesel heater tank in transom) and must be properly labelled and lockable.
- 10.4.9 Valves and fittings used in the fuel system must be of non-corroding materials, and all fuel valves should be readily accessible and labelled.
- 10.4.10 Each fuel vent must be fitted with a ball check valve.
- 10.4.11 Bilge Blower: The gasoline tank space must be fitted with a 12V D.C. bilge blower system in excess of TP1332, controlled by a separate watertight switch on its own breaker at the control console.

#### **11.0 STEERING**

- 11.1 Steering system must be remote hydraulic with self-contained oil reservoir, and replaceable seals on the rams, unless propulsion system builder requires alternate steering arrangement.
- 11.2 Hydraulic hoses must be of sufficient size and length to prevent pulsing. Hoses must be suitable for use in an exposed marine environment complete with stainless steel fittings.
- 11.3 Steering systems must be hydraulic with a maximum of 3.5 turns from hard over to hard over. (The SeaStar® and / or DayStar steering systems, depending on vessel horsepower, from Teleflex meet this requirement). Particular propulsion systems may have their own requirements for steering which must be adhered to, eg. Jet steering systems.

- 11.4 All hydraulic steering hoses must be routed below deck and all hoses must be routed so that there are no pinch points on the hoses.
- 11.5 The wheel / console connection must be of robust construction, to eliminate fore and aft or lateral movement of wheel / steering shaft fixture.
- 11.6 The Steering wheel must be stiff enough that during rough water operations there is no flexing of the wheel and the wheel should be padded to provide a comfortable non-slip surface for the operator to grip. (Momo Marine steering wheels meet these requirements).

## **12.0 PAINTING AND PRESERVATION**

- 12.1 Aluminium components must have a painted finish (an approved powder coat process is acceptable) on all specified exterior and interior surfaces, comprised of suitable etch, primers, and topcoat. Typical single coat paint systems can be applied in the 5 to 7 mil thickness range per coating set. Typical system components would be: a) etch-primer; b) two coats of primer; and c) minimum double topcoat.
- 12.2 Hull and deck paint to be medium grey (RAL7042) except flat black specified areas or components, RAL9004. For colour guidance refer to "FC 08-2007: CANADIAN COAST GUARD FLEET IDENTITY COLOR STANDARD" which will be provided the contractor.
- 12.3 Deck finish must be non-skid paint system suitable for a marine environment to cover the entire deck except waterways and fittings.
- 12.4 Console finish must be painted in a matt black on the "interior" face, not including overhead and DFO grey on the exterior. All rough edges and sharp angled corners must be rounded and ergonomically adapted.
- 12.5 Prior to delivery the Contractor must ensure that all non-painted exposed aluminium is free of cosmetic blemishes, including all construction marks, scratches, gouges and stains.

## **13.0 SYSTEMS GENERAL**

**PROTECTION OF CONTROLS** - All control cables, electrical wiring for the motor and the steering hydraulic hoses are to be installed in UV resistant plastic pipes (LOOM) or equal. These pipes are to be installed in such a manner as to ensure that no cable is immersed in water.

### **13.1 CABLES**

- 13.1.1 Cables for all electrical distribution must be ample in size for the particular service, of marine grade tinned boat cable.
- 13.1.2 Cables must be grouped into wiring harnesses wherever possible. All wiring harnesses must be routed through protective conduit pipe. Where impractical cables and conductors must be supported with clamps or straps at least every 18 inches on horizontal runs and every 14 inches on vertical runs.
- 13.1.3 Cabling / conductors passing through watertight boundaries, decks, bulkheads or other exposed surfaces must be installed to maintain watertight integrity of the structure. Cable entry into watertight enclosures must be through watertight marine glands of suitable size.

- 13.1.4 Cabling / conductors passing through structures without watertight glands, must be protected against chafing by the use of abrasive resistant grommets.
- 13.1.5 Routing cables through foamed spaces must be avoided wherever possible. Cables that must be routed through foamed spaces must be run in PVC conduit pipe. The pipe must be arranged in a manner that prevents water from becoming entrapped in the pipe.

## 13.2 PIPING SYSTEMS

- 13.2.1.1 Fuel System must be air tested to 3.0 psi. and be labelled per the requirements of TP1332.
- 13.2.1.2 Fittings and clamps must be stainless steel. Bolts used in all fittings must be Type 316 stainless steel.
- 13.2.1.3 Each watertight Hull compartment is to have its own 12V DC bilge pump, plumbed to discharge overboard from the compartment, as per TP1332.

## 13.3 NAVIGATION EQUIPMENT (COLREGS)

The following must be Contractor supplied and fitted:

- 13.3.1 Navigation lighting fixtures must be of such a design as to resist the effects of vibration and moisture and must be provided with adequate protection from damage.
- 13.3.2 Particular COLREGS rules to note (vessels under 12 M.); Rules 22, 23, and Annex 1, rules 2, 9, and 10. (NOTE: The lights must be installed parallel to the "Normal Load" waterline that often may not be parallel to the deck.)
- 13.3.3 The navigation lights must be mounted so as not to interfere with vision of the operator.
- 13.3.4 The navigation lights must be permanently mounted.
- 13.3.5 All navigation lights must display the arc and range of visibility as defined in the Canada Shipping Act, Collision Regulations.
- 13.3.6 Navigation lights must be permanently fitted to the T-top with protected wiring and must be waterproofed. The fitting of a combined lantern on the inflatable collar will not be acceptable.
- 13.3.7 The navigation light fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage, which may occur when lying alongside a vessel or a pier. (The Hella NaviLED meet this requirement.) A single all-round light for Masthead / Stern light is acceptable, mounted on a folding / detachable stanchion 1M above sidelights. LED navigation lights may be used.
- 13.3.8 The Contractor must supply and install an electric horn that ensures the requirements of the Collision Regulations, Rule 32 are met, i.e. with a standard small vessel 'horn' audible 0.5 NM. The horn must be installed on the vessel exterior with the 'horn' facing forward. The horn must be operated by a spring-loaded switch located on the operators' console. At a minimum a BRP 120 db horn must be installed.
- 13.3.9 A Magnetic Compass must be mounted near the centreline of the helm station, in easy view of the operator when facing forward.

## **14.0 TESTS & TRIALS**

The Contractor must conduct their own inspections, tests and trials to verify successful completion of the Work in accordance with this TSOR and the proper operation of the vessel and all associated equipment. The requirements for inspections, tests and trials and associated deliverable documentation are defined in the Contract and Annexes to the Contract including any test, trials or sample reports attached thereto. All discrepancies identified through the inspection, test and trials processes must be corrected prior to delivery.

14.1.1 The Contractor must, as a minimum, inspect and test the following items for adherence to the contract requirements and proper operation (proper operation means that the equipment can be started, operated, connected together and demonstrated to function in a normal fashion, as applicable). The inspections and tests listed herein are minimums and are not intended to supplant any controls, examinations, inspections or tests normally employed by the Contractor to assure the quality of the vessel:

14.1.1.1 Weight

14.1.1.2 Construction Quality

14.1.1.3 Lifting Gear, if applicable

14.1.1.4 Propulsion Engines, including starting

14.1.1.5 Propulsion Controls

14.1.1.6 Steering System

14.1.1.7 Fuel System

14.1.1.8 Electrical System

14.1.1.9 Electronics

14.1.2 Sea Trials

The minimum acceptable sea trial and report is as attached hereto, ATTACHMENT I OF APPENDIX II.

14.1.3 A copy of the stability calculations and documentation as previously submitted must be provided for the Technical Authority.

14.1.4 Trial Records and Reports:

The requirements for recording and maintaining trials records are given in the Contract and applicable Annexes

14.1.5 Deliverable Documentation:

The requirements for deliverable documentation are given in the Contract and applicable Annexes.

## **15.0 BUILDER'S PLATE NATIONAL ASSET CODE**

15.1.1 The National Asset Codes for each of these vessels is provided in Annex B. The contractor must add this 5 character code to the builder's plate of the vessel with the prefix "National Asset Code".

### **15.2 BUILDER'S PLATE**

15.2.1 Must comply with Transport Canada TP1332 requirements as a minimum.

- 15.2.2 A Builder's Plate must be affixed to each asset in a readily visible location, e.g. for a boat, in way of the helm position, for a trailer on the left side of the tongue.
- 15.2.3 The plate must be made of a weather resistant material compatible with that to which it is affixed.
- 15.2.4 The dimensions of the plate must be not less than 200mm x 125mm
- 15.2.5 The plate must contain the following information, permanently etched:
  - 15.2.5.1 National Asset Code;
  - 15.2.5.2 Naval Architect/Designer;
  - 15.2.5.3 Builder;
  - 15.2.5.4 Hull Number;
  - 15.2.5.5 Year of Construction;
  - 15.2.5.6 Lightship Weight in kilograms.
- 15.2.6 The Builder's Plate must be in both official languages.

## **16.0 SHIPPING AND DELIVERY**

Prior to shipping, the boat is to be cleaned, appropriately protected and covered in accordance with the instructions specified in this section.

- 16.1 Prior to shipping, the boats must be secured on their respective trailers, cleaned, preserved and covered in accordance with this section. All areas of the boat are to be cleaned prior to covering for shipping. Bilges are to be dry and free of oil and debris and the fuel tanks must be full with fuel stabilizer added.
- 16.2 The propulsion system must be preserved in accordance with the manufacturer's recommendations for storage of up to one year in an environment that will be subjected to freezing temperatures.
- 16.3 The batteries are to be disconnected. A warning plate is to be tied to the steering wheel with a wire indicating that the boat has been protected for shipping and storage and must not be started until the propulsion machinery has been reactivated.
- 16.4 All contact points with the boat are to be padded. A shrink wrap cover is to be provided to protect the boat during shipping and storage.
- 16.5 Means of Delivery: For a delivery distance not exceeding 1000 km the Contractor may deliver the vessel/trailer combination on the trailer. Where the delivery distance exceeds 1000 km the trailer may not be utilized as means of delivery.

## **17.0 WARRANTY AND SERVICE PROVISIONS**

### **17.1 Components and Equipment Support**

- 17.1.1 All components and all mechanical, auxiliary, electronic and electrical equipment installed on the boat, with the exception of the collar, must be supportable by parts and service in Canada within 30 days. A collar, if any, must be supportable by parts and service in Canada within 30 days. All components and equipment must be current models.

### **17.2 Spare Parts**

- 17.2.1 To facilitate replacement and inter-changeability of parts, as well as maintenance procedures and operator training wherever practicable the

Contractor must standardize on selection of equipment, fittings and fabrication methods within all boats supplied.

#### **17.2.2 Parts and Service Depot(s)**

17.2.2.1 Contractor's parts depots must be capable of efficiently supplying all British Columbia with spare parts for all components of the vessel and warranty service for all components of the vessel. It is recognized that many equipment items will have their own manufacturer's warranty cards for owner registration. Contractors must have a factory authorized service representative capable of call back response in all regions of Canada within 48 hours of receiving a service call.

### **18.0 TRAILER**

18.1 A trailer with a boarding ladder (w/square tube for rungs with non-skid material and each rung) and hand rail secured to the tongue trailer allowing ease of access to board the boat while it is on the trailer but does not impact or impede the ability to trailer the vessel. Is to be rated at least 20% over the anticipated 'normal load' weight of the boat, and to be specified as follows:

18.1.1 Capacity to be minimum 10,000 lb. Welded galvanized construction.

18.1.2 15 inch 6 bolt wheels with disc brakes, carrying 225 / 75R / 15D tires with 'E' load rating.

18.1.3 Double axle, with axle bearing protection, grease nipple.

18.1.4 Brake, and turn signal lighting, with wiring to be copper tinned and have a 7-prong round wiring connector.

18.1.5 Electric / hydraulic, jurisdiction compliant braking system; (Note braking system proposed, if other than stated requirement).

18.1.6 Electric / hydraulic, jurisdiction compliant braking system; (Note braking system proposed, if other than stated requirement).

18.1.7 Manual, two speed bow winch assembly with winch webbing strap, bow chock, and swivel tongue jack, (2500 lb.) with wheeled foot.

18.1.8 Trailer to be fitted with heavy-duty 'stand-on' fenders, and hitch to accommodate a 2 5/16" ball.

18.1.9 Trailer to have multiple roller assemblies, and spare tire and carrier, with lug wrench.

18.1.10 Trailer to be supplied with two (2) ratchet tie down straps with hooks securing boat to trailer aft. Turnbuckle to be provided for securing boat to trailer forward. Securing eyes must be sufficient in size to allow for large ratchet hooks to fit inside when securing the vessel

18.1.11 Stainless steel calipers, mounting brackets and rotors with the appropriate brake pads.

18.2 The contractor must record the trailer sales and registration information and provide the information in each vessel manual.

# **APPENDIX I**

## **Final Deliverable Data Package**

The Final Data Package which must be delivered to Canada is as defined in the Contract, but must include, as a minimum the technical publications identified in this appendix.

### **1.0 Comprehensive Owner/Operator Manuals**

#### **1.1 Deliverables**

**1.1.1** One (1) complete hard copy and one (1) complete CD or USB electronic copy set of the manuals per vessel delivered for the operator of each vessel, to be delivered with the vessel.

**1.1.2** One (1) complete hard copy and one (1) complete CD or USB electronic copy set of the manuals per vessel delivered for the Technical Authority, to be delivered to the same address identified for invoices.

#### **1.2 Content**

The manuals must provide a physical and functional description of the craft, it's machinery and equipment, as well as delivery testing and sea trial result documentation. The manuals must include as a minimum the following three sections and as detailed below:

- General Information
- Technical Information
- Spare Parts List

#### **1.2.1 GENERAL INFORMATION SECTION**

The General Information Section must include a description of the arrangement and function of all structures, systems, fittings and accessories that comprise the boat, with illustrations as appropriate:

1.2.1.1 Operating procedures;

1.2.1.2 Basic operating characteristics (such as temperatures, pressures, flow rates)

1.2.1.3 Installation criteria and drawings, assembly and disassembly instructions with comprehensive illustrations showing each step;

1.2.1.4 Recommended planned maintenance; and

1.2.1.5 Complete troubleshooting procedures.

#### **1.2.2 TECHNICAL INFORMATION SECTION**

The Technical Information Section a complete set of detailed owner / operator instructions, drawings (Section 15), parts lists and supplemental data for all components of the boat (whether acquired from external sources or custom-manufactured).

1.2.2.1 "As Fitted", dimensioned drawings must be produced for manuals to record the vessel particulars.

1.2.2.2 Plan and Profile, showing the General arrangement; and

1.2.2.3 Indication of the Systems arrangement presented with the above drawings covering Bilge, Fuel, Electrical, and propulsion installations.

- 1.2.2.4 Parts list must include the name, part number and serial number if applicable of the parts, items or components and must indicate the supplier (name, address, phone number, email address) of this part, equipment or component and in which part of the specification the item appears.
- 1.2.2.5 Hull Serial Number (HIN), copy of builders plate, TEST and TRIAL results as per completed Attachment 1 of Appendix II, serial or manufacturer's numbers, and equipment warranty cards.
- 1.2.2.6 Engine(s) and equipment: including engine and propulsion serial numbers.
- 1.2.2.7 Collars; including collar material and glue materials and procedures necessary for onboard repair of the collar.
- 1.2.2.8 Acceptance Certificates, and compliance sheets or certificates distributed with equipment i.e. life saving appliances, lifting appliances, engine test reports, calibration certificates, Nav light certificates, Fire suppression material certificates, flotation foam rating sheets
- 1.2.2.9 Pre-trial shop Testing Check Sheet.
- 1.2.2.10 Electronics, (if applicable): including model and serial numbers.
- 1.2.2.11 Regulatory and Stability documentation: as required per TP 1332, which, references ISO12217 or ISO 6185 for RIBs (if applicable).

### **1.2.3 SPARE PARTS LIST SECTION**

The Spare Parts List section must include a list of recommended initial onboard spare parts to be stocked for the vessel. The list must include the name, part number and serial number if applicable of the parts, items or components and must indicate the supplier (name, address, phone number, email address) of this part, equipment or component and in which part of the TSOR the item appears. At a minimum this list must include the following items (as applicable):

- 1.2.3.1 Propulsion: Propellers, filters, water pump impeller, batteries, throttle and shift cables, special engine tools.
- 1.2.3.2 Electrical: panel breakers, fuses, light bulbs;
- 1.2.3.3 Boat Structures and Fittings: Miscellaneous commonly used fasteners.

## **2.0 ADDITIONAL DELIVERABLE DOCUMENTATION**

The following additional documentation must be delivered with each vessel:

- 2.1** Tonnage Registration Certificate in accordance with TP 13430 - <http://www.tc.gc.ca/eng/marinesafety/svcp-gt-3948.htm>
- 2.2** A completed and signed copy of the Small Vessel Compliance Program SVCP for the vessel delivered. Website: <http://www.tc.gc.ca/eng/marinesafety/svcp-menu-3633.htm>
- 2.3** Two complete sets (one for the vessel and a second for the trailer) of Bill of Sales per vessel delivered, one for the vessel and a second for the Technical Authority. A valid Motor Vehicle Registration Certificate for the relevant Province of delivery for the vessel trailer must be delivered with the vessel.

# APPENDIX II

## Sea Trials

- 1.0** Sea trials must be conducted by the Contractor to demonstrate the vessel and its equipment conform to the requirements as stated in the Contract. All expenses incident to the trials must be borne by the Contractor, including fuel unless otherwise specified. A crew provided by the Contractor must operate the vessel during sea trials. Residual fuel, if not drained for shipping, must be delivered in its tank with the vessel.
- 2.0** All Sea Trial instrumentation and equipment must be furnished and operated by the Contractor. Trial instrumentation, where applicable, must not replace the vessel's instruments (e.g., engine tachometer, pressure gauges, and thermometers). The Contractor must furnish all necessary hardware and fittings and must install the measuring devices. After satisfactory completion of the trials, all instrumentation must be removed and all systems restored to their original condition. The Contractor must provide two (2) copies of the calibration data certifying the accuracy of the instrumentation for the tests and include it in the technical publications.
- 3.0** The Contractor is required to run the vessel during the builders trials until the engine(s) have accumulated their operational hours (20 hours approximately) sufficient for the initial service by the engine manufacturer's service agent and perform the initial service and provide a report of the service.
- 4.0** The Contractor must submit a Test & Trials Plan, including a description of all of the acceptance trials to be performed. As a minimum, Using Attachment I, modified to suit these vessels, the following trials must be conducted: (the vessel must operate in the Normal Load Condition.)
  - 4.1.1** Speed Trials - The speed trials must be done over a course at least one (1) nautical mile in length. Two (2) runs must be made over the course, one (1) in each direction with the speeds for the two (2) runs averaged. The use of GPS data (averaged) is acceptable.
  - 4.1.2** Endurance Trial - The boat must operate at maximum speed for a minimum of ten (10) minute intervals in the Fully Loaded Condition over one (1) hour period considering the break in procedures of the equipment. During the endurance trials, it must be demonstrated that all parts of the propulsion system are in full operation. All systems must be operated to check for proper lubrication, control and alignment. Fuel consumption must be recorded for the one-hour trial.
  - 4.1.3** Astern Propulsion - The vessel must be operated and manoeuvred using astern propulsion to establish the astern performance. During the backing performance tests the throttles must be set to provide 1/3 of the rated engine horsepower. In order to demonstrate astern performance of the engines in an emergency stop and to test the strength of the foundations, the engine must be subjected to two stops from full power ahead at maximum speed to dead in the water using reverse thrust. Time required to perform this trial must be recorded.
  - 4.1.4** Steering Gear - Tests must be conducted on the steering gear to

demonstrate the adequacy of the steering system under all operations. Manoeuvring tests must be performed to ensure that the vessel meets the stated requirements. Manoeuvring trials must be conducted in the Normal Load Condition and repeated in the Full Load Condition.

- 4.1.5** The Contractor must provide a Tests & Trials Sheet, (Attachment 1) for each boat and include this sheet in the technical publications.
- 4.1.6** Public Works and Government Services Canada Contract Authority and Technical Authority must be notified no less than 2 weeks prior to sea trials. The Technical Authority will witness and attend the sea trials. Sea trial results must be forwarded to the Technical Authority prior to delivery of the vessel.
- 4.1.7** At the conclusion of sea trials each vessel must be thoroughly cleaned and inspected. Engine cooling systems must be flushed through with fresh water. The Contractor must repair any damage to the vessel or ancillary equipment resulting from sea trials, to the satisfaction of the Technical Authority.
- 4.1.8** For the purpose of the trials, Normal Loaded Condition must be considered to be the basic vessel, fitted with all normal equipment, full fuel, with complement and loads per Vessel Particulars, (see section 4.1.1).

Solicitation No. - N° de l'invitation  
 F7047-150008 /A  
 Client Ref. No. - N° de réf. du client  
 F7047-150008

Amd. No. - N° de la modif.  
 File No. - N° du dossier  
 XLV-5-38087

Buyer ID - Id de l'acheteur  
 xlv166  
 CCC No./N° CCC - FMS No./N° VME

**APPENDIX II, ATTACHMENT 1**  
**SMALL CRAFT / VESSEL TESTS & TRIALS SHEET**  
**CONTRACT # F7047-150008**

<b>Small Craft / Vessel Builder:</b>			
<b>Small Craft / Vessel Description:</b>			
<b>Hull Identification Number:</b>			
<b>National Asset Code:</b>			
<b>Date of Trials:</b>			
<b>Personnel in Attendance:</b>			
<b>Builder</b>			
<b>PWGSC</b>			
<b>DFO</b>			
<b>DFO</b>			
<b>Time: _____ hrs Departing from _____</b>			
<b>Small Craft / Vessel Weights:</b>	Dry Weight of Hull with cabin:	_____ lbs/ _____ kg	
	Furnishings & Fittings:	_____ lbs/ _____ kg	
	Engines & Equipment:	_____ lbs/ _____ kg	
	Fuel: _____ Imp gal	Fuel: _____ Litres	_____ lbs/ _____ kg
	<b>Total Weight of Small Craft/Vessel:</b>	<b>_____ lbs/ _____ kg</b>	
	Number of Crew _____ and operating equipment:	_____ lbs/ _____ kg	
	<b>Test Total Laden Weight:</b>	<b>_____ lbs/ _____ kg</b>	
	<b>Trailer weight:</b>	<b>_____ lbs/ _____ kg</b>	

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Buyer ID - Id de l'acheteur  
 xlv166  
 CCC No./N° CCC - FMS No./N° VME

	<b>Boat &amp; Trailer weight:</b>	_____ lbs/ _____ kg
<b>Motors: Starting - Operation</b> "IDENTIFY INBOARD/OUTBOARDS"	<b>Port</b>	<input type="radio"/> Immediate, Yes / No
	<b>Starboard</b>	<input type="radio"/> Immediate, Yes / No
<b>Propellers/Impellers</b>	<b>Pitch</b>	_____
	<b>Diameter</b>	_____
	<b>No. of Blades</b>	_____
	<b>Stainless Steel or Aluminum</b>	<input type="radio"/> S/S ___ AL
<b>Static Attitude &amp; Trim:</b>		
<b>Weather Conditions: Refer to attached Beaufort Wind Scale. BWS No. _____</b>		
<b>Speed Trials</b>	<b>Speed Required _____ - _____ knots</b>	
	Cruising Speed: measured mile 1 way	_____ kts @ _____ rpm
	Cruising Speed: measured mile return	_____ kts @ _____ rpm
	<b>Averaged Cruising Speed:</b>	_____ kts @ _____ rpm
	Maximum Speed: measured mile 1 way	_____ kts @ _____ rpm
	Maximum Speed: measured mile return	_____ kts @ _____ rpm
	<b>Average Maximum Speed</b>	_____ kts @ _____ rpm
<b>Full Throttle</b>	From dead stop to plane	_____ seconds
	From dead stop to 30 knots	_____ seconds
<b>Astern Propulsion:</b>	Straight line to 2000 rpm	<input type="radio"/> Issues, Yes / No
	Hard a-port	<input type="radio"/> Issues, Yes / No

	Hard a-starboard	<input type="radio"/> <b>Issues, Yes / No</b>
	Emergency stop	_____ seconds
<b>Tubes (if applicable)</b>	No. of Chambers	_____
	Semi-auto fill system	<input type="radio"/> <b>Yes / No</b>
	Time to fill all chambers	_____ seconds
<b>Endurance Trials: X = gallons or Litres</b>	<b>Fuel consumption</b>	
	Port & Starboard Motor: at cruise:	_____ X/hr @ _____ rpm
	Port & Starboard Motor: at full throttle:	_____ X/hr @ _____ rpm
<b>Steering: Acceptable Y /N</b>	Straight line	<input type="radio"/> <b>Yes / No</b>
	Hard-Port radius of turn. Full Throttle	_____ feet
	Hard-Stbd radius of turn. Full Throttle	_____ feet
	Lock to lock = 35 degrees pt. & stbd	<input type="radio"/> <b>Yes / No</b>
	Effective steering 0-5 knots	<input type="radio"/> <b>Yes / No</b>
	5-10 knots	<input type="radio"/> <b>Yes / No</b>
	20-30 knots	<input type="radio"/> <b>Yes / No</b>
	Full speed	<input type="radio"/> <b>Yes / No</b>
<b>Outboard/Inboard Leg Trim Control:</b>	From fully raised to fully lowered.	<input type="radio"/> <b>Acceptable Yes / No</b>
<b>Trim Tab Operation:</b>	Fully raised, fully lowered.	<input type="radio"/> <b>Acceptable Yes / No</b>
<b>Engine Controls:</b>	Start	<input type="radio"/> <b>Issues, Yes / No</b>
	Shift	<input type="radio"/> <b>Issues, Yes / No</b>
	Throttle	<input type="radio"/> <b>Acceptable Yes / No</b>

<b>Engine Gauges:</b>	Tachometer	<input type="radio"/> <b>Acceptable Yes / No</b>
	Fuel gauges	<input type="radio"/> <b>Acceptable Yes / No</b>
	Trim gauges	<input type="radio"/> <b>Acceptable Yes / No</b>
	Oil pressure	<input type="radio"/> <b>Acceptable Yes / No</b>
<b>Engine Gauges:</b>	Voltmeter	_____ volts
<b>Cabin Sound Levels:</b>	Cruising speed- door & windows closed	_____ dbA @ _____ rpm
	Cruising speed- door & windows open	_____ dbA @ _____ rpm
	Full speed- door & windows closed	_____ dbA @ _____ rpm
	Full speed- door and windows open	_____ dbA @ _____ rpm
<b>Outboard/Inboard engine operation:</b>	Starting	<input type="radio"/> <b>Acceptable Yes / No</b>
	Shifting	<input type="radio"/> <b>Acceptable Yes / No</b>
	Throttle	<input type="radio"/> <b>Acceptable Yes / No</b>
	Raise	<input type="radio"/> <b>Acceptable Yes / No</b>
	Lower	<input type="radio"/> <b>Acceptable Yes / No</b>
<b>Loaded Vessel Drop Test:</b>	<b>If applicable</b>	<input type="radio"/> <b>Acceptable Yes / No</b>
<b>Lifting Bridle Certified:</b>	<b>If applicable</b>	<input type="radio"/> <b>Acceptable Yes / No</b>
<b>Rollover test</b>	<b>If applicable</b>	<input type="radio"/> <b>Acceptable Yes / No</b>

<b>NOTES</b>


## Beaufort Wind Scale Identifier

Force	Wind Speed		Descriptive Term	Effects Observed at Sea	Effects Observed on Land
	Km/h	Knots			
0	Less than 1	Less than 1	Calm	Sea surface like a mirror, but not necessarily flat.	Smoke rises vertically.
1	1 - 5	1 - 3	Light air	Ripples with the appearance of scales are formed, but without foam crests.	Direction of wind shown by smoke drift, but not wind vanes.
2	6 - 11	4 - 6	Light breeze	Small wavelets, still short but more pronounced. Crests do not break. When visibility good, horizon line always very clear.	Wind felt on face. Leaves rustle. Ordinary vane moved by wind.
3	12 - 19	7 - 10	Gentle breeze	Large wavelets. Crests begin to break. Foam of glassy appearance. Perhaps scattered whitecaps.	Leaves and small twigs in constant motion. Wind extends light flag.
4	20 - 28	11 - 16	Moderate breeze	Small waves, becoming longer. Fairly frequent whitecaps.	Raises dust and loose paper. Small branches are moved.
5	29 - 38	17 - 21	Fresh breeze	Moderate waves, taking a more pronounced long form. Many whitecaps are formed. Chance of some spray.	Small trees with leaves begin to sway. Crested wavelets form on inland waters.
6	39 - 49	22 - 27	Strong breeze	Large waves begin to form. The white foam crests are more extensive everywhere. Probably some spray.	Large branches in motion. Whistling heard in telephone wires. Umbrellas used with difficulty.
7	50 - 61	28 - 33	Near gale	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind.	Whole trees in motion. Inconvenience felt in walking against wind.
8	62 - 74	34 - 40	Gale	Moderately high waves of greater length. Edges of crests begin to break into the spindrift. The foam is blown in well-marked streaks along the direction of the wind.	Breaks twigs off trees. Generally impedes progress. Walking into wind almost impossible.
9	75 - 88	41 - 47	Strong gale	High waves. Dense streaks of foam along the direction of the wind. Crests of waves begin to topple, tumble and roll over. Spray may affect visibility.	Slight structural damage occurs, e.g. roofing shingles may become loose or blow off.
10	89 - 102	48 - 55	Storm	Very high waves with long overhanging crests. Dense white streaks of foam. Surface of the sea takes a white appearance. The tumbling of the sea becomes heavy and shock-like. Visibility affected.	Trees uprooted. Considerable structural damage occurs.
11	103 -	56 - 63	Violent storm	Exceptionally high waves. Sea completely	Widespread damage.

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Force	Wind Speed		Descriptive Term	Effects Observed at Sea	Effects Observed on Land
	Km/h	Knots			
	117			covered with long white patches of foam. Visibility affected.	
12	118 - 133	64 - 71	Hurricane	Air filled with foam and spray. Sea entirely white with foam. Visibility seriously impaired.	Rare. Severe widespread damage to vegetation and significant structural damage possible.



**BEAUFORT FORCE 0**  
WIND SPEED: LESS THAN 1 KNOT  
SEA: SEA LIKE A MIRROR



**BEAUFORT FORCE 1**  
WIND SPEED: 1-3 KNOTS  
SEA: WAVE HEIGHT .1M (25FT), RIPPLES WITH THE APPEARANCE OF SCALES, BUT WITHOUT FOAM CRESTS



**BEAUFORT FORCE 2**  
WIND SPEED: 4-6 KNOTS  
SEA: WAVE HEIGHT .2-3M (5-10FT), SMALL WAVELETS, CRESTS HAVE A GLASSY APPEARANCE AND DO NOT BREAK



**BEAUFORT FORCE 4**  
WIND SPEED: 11-16 KNOTS  
SEA: WAVE HEIGHT 1-1.5M (3.5-5FT), SMALL WAVES BECOMING LONGER, FAIRLY FREQUENT WHITE HORSES



**BEAUFORT FORCE 5**  
WIND SPEED: 17-21 KNOTS  
SEA: WAVE HEIGHT 2-2.5M (6-8FT), MODERATE WAVES TAKING MORE PRONOUNCED LONG FORM, MANY WHITE HORSES, CHANCE OF SOME SPRAY



**BEAUFORT FORCE 6**  
WIND SPEED: 22-27 KNOTS  
SEA: WAVE HEIGHT 3-4M (9.5-13 FT), LARGER WAVES BEGIN TO FORM, SPRAY IS PRESENT, WHITE FOAM CRESTS ARE EVERYWHERE



**BEAUFORT FORCE 7**  
WIND SPEED: 28-33 KNOTS  
SEA: WAVE HEIGHT 4-5.5M (13.5-19 FT), SEA HEAPS UP, WHITE FOAM FROM BREAKING WAVES BEGINS TO BE BLOWN IN STREAKS ALONG THE WIND DIRECTION



**BEAUFORT FORCE 8**  
WIND SPEED: 34-40 KNOTS  
SEA: WAVE HEIGHT 5.5-7.5M (18-25FT), MODERATELY HIGH WAVES OF GREATER LENGTH, EDGES OF CREST BEGIN TO BREAK INTO THE SPINDRIFT, FOAM BLOWN IN WELL MARKED STREAKS ALONG WIND DIRECTION



**BEAUFORT FORCE 9**  
WIND SPEED: 41-47 KNOTS  
SEA: WAVE HEIGHT 7-10M (23-32FT), HIGH WAVES, DENSE STREAKS OF FOAM ALONG DIRECTION OF THE WIND, WAVE CRESTS BEGIN TO TOPPLE, TUMBLE, AND ROLL OVER, SPRAY MAY AFFECT VISIBILITY



**BEAUFORT FORCE 10**  
WIND SPEED: 48-55 KNOTS  
SEA: WAVE HEIGHT 9-12.5M (29-41FT), VERY HIGH WAVES WITH LONG OVERHANGING CRESTS, THE RESULTING FOAM, IN GREAT PATCHES, IS BLOWN IN DENSE WHITE STREAKS ALONG WIND DIRECTION, ON THE WHOLE, SEA SURFACE TAKES A WHITE APPEARANCE, TUMBLING OF THE SEA IS HEAVY AND SHOCK-LIKE, VISIBILITY AFFECTED



**BEAUFORT FORCE 11**  
WIND SPEED: 56-63 KNOTS  
SEA: WAVE HEIGHT 11.5-16M (37-52FT), EXCEPTIONALLY HIGH WAVES, SMALL-MEDIUM SIZED SHIPS MAY BE LOST TO VIEW BEHIND THE WAVES, SEA COMPLETELY COVERED WITH LONG WHITE PATCHES OF FOAM LYING ALONG WIND DIRECTION, EVERYWHERE, THE EDGES OF WAVE CRESTS ARE BLOWN INTO FROTH



**BEAUFORT FORCE 12**  
WIND SPEED: 64 KNOTS  
SEA: SEA COMPLETELY WHITE WITH DRIVING SPRAY, VISIBILITY VERY SERIOUSLY AFFECTED, THE AIR IS FILLED WITH FOAM AND SPRAY

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## ANNEX B - BIDDERS' QUESTIONS AND CANADA'S RESPONSES

Solicitation # F7047-150008

**REQUIREMENT: REQUEST FOR PROPOSALS (RFP): Fabrication and Delivery of Two (2) 8.3M to 8.6M Rigid Inflatable Boats with Open Consoles, T-Tops and trailers for the Department of Fisheries and Oceans.**

*To be completed as required during the bid solicitation period.*

Item	Spec-RFP description	Questions	Answers

## **ANNEX C - INSPECTION/QUALITY ASSURANCE/QUALITY CONTROL**

### **1. Conduct of Inspection**

- (a) Inspections will be conducted in accordance with the ITP provided and accepted by the Inspection Authority and as detailed in this Annex.
- (b) The Contractor must provide its own staff or subcontractors to conduct inspections, tests and trials; excepting that Technical Authority or Inspection Authority personnel may be designated in the specifications, in which case the Contractor must ensure that its own staff are provided in support of such inspection/test/trial.
- (c) As applicable, the Contractor must ensure that the required conditions stated in the specification prevail at the commencement of, and for the duration of, each inspection/test/trial.
- (d) The Contractor must ensure that personnel required for equipment operation and records taking during the inspection/test/trial are briefed and available at the start and throughout the duration of the inspection/test/trial. Tradesmen or FSRs who may be required to effect minor changes or adjustments in the installation must be available at short notice.
- (e) The Contractor is to coordinate the activities of all personnel taking part in each inspection/test/trial and ensure that safe conditions prevail throughout the inspection/test/trial.

### **2. Inspection Records and Reports**

- (a) The Contractor on the inspection record, test or trials sheets as applicable must record the results of each inspection. The Contractor must maintain files of completed inspection records.
- (b) The Contractor's Quality Control (QC) representative (and the FSR when required) must sign as having witnessed the inspection, test or trial on the inspection record. The Contractor must forward originals of completed inspection records, together with completed test(s) and/or trials sheets to the Inspection Authority as they are completed.
- (c) Unsatisfactory inspection/test/trial results, for which corrective action cannot be completed during the normal course of the inspection/test/trial, will require the Contractor to establish and record the cause of the unsatisfactory condition to the satisfaction of the Inspection Authority. Canada representatives may assist in identification where appropriate.
- (d) Corrective action to remove cause of unsatisfactory inspections must be submitted to the Contracting Authority and to the Inspection Authority in writing by the Contractor, for approval before affecting such repairs and rescheduling of the unsatisfactory inspection/test/trial. Such notices must be included in the final records passed to the Contracting Authority and to the Inspection Authority.
- (e) The Contractor must undertake rectification of defects and deficiencies in the Contractor's installation or repair as soon as practicable. The Contractor is responsible to schedule such repairs at its own risk.
- (f) The Contractor must reschedule unsatisfactory inspections after any required repairs have been completed.
- (g) Quality Control, Inspection and Test records that substantiate conformance to the specified requirements, including records of corrective actions, must be retained by the Contractor for three (3) years from the date of completion or termination of the Contract and must be made available to the Contracting Authority and to the Inspection Authority upon request.

### **3. Inspection and Trials Process**

#### **3.1 Drawings and Purchase Orders**

- (a) Upon receipt of two (2) copies of each drawing or purchase order, the designated Inspection Authority will review its content against the provisions of the SOW. Where discrepancies are noted, the Inspection Authority will formally advise all concerned, in writing using a Discrepancy Notice. The resolution of any such discrepancy is a matter for consultation between the Contractor and other Government of Canada Authorities.

#### **3.2 Inspection**

- (a) Upon receipt and acceptance of the Contractor's ITP, inspection will consist of a number of Inspection Points supplemented by such other inspections, tests, demonstrations and trials as may be deemed necessary by the Inspection Authority to permit him to certify that the work has been performed in compliance with the provisions of the specification. The Contractor must be responsible for notifying the designated Inspection Authority of when the work will be available for inspection, sufficiently in advance to permit the designated Inspection Authority to arrange for the appropriate inspection.
- (b) The Inspection Authority will inspect the materials, equipment and work throughout the project against the provisions of the specification and, where non-conformances are noted, will issue appropriate INSPECTION NON-CONFORMANCE REPORTS.
- (c) The Contract requires the implementation of a Quality Assurance/Quality Control system, so the Inspection authority must require that the Contractor provide a copy of its internal inspection report pertaining to a work item before conducting the requested inspection. If third party inspections are required by the Contract (e.g. inspections by a certified CWB 178.2 welding inspector), the reports of these inspections are required before the Work is inspected by the Inspection Authority.
- (d) The QA/QC system is a requirement, so if the documentation is presented to the Inspection Authority before an inspection stating that the Work is satisfactory but the Inspection Authority finds that the Work has not been satisfactorily inspected, the Inspection Authority must issue an Inspection Non-conformance Report against the Work and another against the failure of the Contractor's QA/QC system.
- (e) Before carrying out any inspection, the Inspection Authority must review the requirements for the Work and the acceptance and/or rejection standards to be applied. Where more than one standard or requirement is called up and they are potentially conflicting, the Inspection Authority must refer to the order of precedence in the Contract to determine the standard or requirement to be applied.

#### **3.3 Inspection Non-conformance report**

- (a) An Inspection Non-conformance report will be issued for each non-conformance noted by the Inspection Authority. Each report will be uniquely numbered for reference purposes, will be signed and dated by the Inspection Authority, and will describe the non-conformance.
- (b) When the non-conformance has been corrected by the Contractor and has been re-inspected and accepted by the Inspection Authority, the Inspection Authority will complete the Report by adding an applicable signed and dated notation.
- (c) At the end of the project, the content of all Inspection Non-conformance Reports which have not been signed-off by the Inspection Authority will be transferred to the Acceptance documents before the Inspection Authority's certification of such documents.

#### **3.4 Tests, Trials, and Demonstrations**

- (a) To enable the Inspection Authority to certify that the Work has been performed satisfactorily, in accordance with the Contract and specifications, the Contractor must schedule, co-ordinate, perform, and record all specified tests, trials and demonstrations required by the Inspection

Authority and the Specifications and any additional tests and trials performed by the Contractor required by the Inspection Authority.

- (b) Where the specifications contain a specific performance requirement for any component, equipment, sub-system or system, the Contractor must test such component, equipment, sub-system or system to the satisfaction of the Inspection Authority, to prove that the specified performance has been achieved and that the component, equipment, sub-system or system performs as required by the specifications.
- (c) Tests, trials and demonstrations must be conducted in accordance with a logical, systematic schedule which must ensure that all associated components and equipment are proven before sub-systems demonstration or testing, and that sub-systems are proven before system demonstration or testing.
- (d) Where the Specifications do not contain specific performance requirements for any component, equipment, sub-system or system, the Contractor must demonstrate such component, equipment, sub-system or system to the satisfaction of the Inspection Authority.
- (e) The Contractor must co-ordinate each test, trial and demonstration with all interested parties, including the Inspection, Contracting and Technical Authorities; regulatory authorities; Classification Society; Sub-contractors; etc. The Contractor must provide the Inspection Authority and other Government of Canada Authorities with a minimum of ten (10) working days notice of each scheduled test, trial, or demonstration.
- (f) The Contractor must keep written records of all tests, trials, and demonstrations conducted required by the QA System.
- (g) The Contractor must in all respects be responsible for the conduct of all tests and trials in accordance with the requirements of the Contract.
- (h) The Contracting Authority and the Inspection/Technical Authority reserve the right to defer starting or continuing with any sea trials for any reasonable cause including but not limited to adverse weather, visibility, equipment failure or degradation, lack of qualified personnel and inadequate compliance with safety standards.

**ANNEX D - DETAILED FINANCIAL BID PRESENTATION SHEET**

**D-1 Proposed Work Location:**

Contractor's Facility \_\_\_\_\_

**D-2 Evaluation of Price**

The price of the bid will be evaluated in Canadian dollars, customs duties are included and applicable taxes are extra, CIP (Incoterms 2000) to destination: **TBD, British Columbia.**

<b>a.</b>	<b>Known Work (Quantities: 2 boats, 2 trailers)</b> For work as stated in Part 1 article 1.2, specified in Annex A, entire TSOR Two (2) 8.3M to 8.6M Rigid Inflatable Boats with Open Consoles, T-Tops and trailers for a FIRM PRICE of:	\$ _____
<b>b.</b>	<b>Unscheduled Work</b> <i>Labour Cost:</i> Estimated labour hours at a firm <i>Charge-out Labor Rate</i> , including overhead and profit: 50 person hours X \$ _____ per hour for a PRICE of: <b>See articles D-3 and D3.1 below.</b>	\$ _____
<b>c.</b>	<b>Delivery to destination, CIP, (Incoterms 2000) to:</b> <b>TBD, British Columbia</b> for a FIRM PRICE of:	\$ _____
<b>d.</b>	<b>EVALUATION PRICE [a + b + c]</b>  For an EVALUATION PRICE of: customs duties are included and applicable taxes are excluded	\$ _____

**D-3 Unscheduled Work**

Unscheduled work arising, as authorized by the Minister, will be calculated in the following manner:

"Number of hours (to be negotiated) X \$ \_\_\_\_\_ your firm hourly *Charge-out Labour Rate* which includes *Overhead* and profit, plus net laid-down cost of materials to which will be added a 10% mark-up, plus Goods and Services Tax or Harmonized Sales Tax as applicable, of the total cost of material and labour.

The firm hourly *Charge-out Labour Rate* and the material mark-up will remain firm for the duration of the Contract and any subsequent amendments."

**D-3.1** Notwithstanding definitions or usage elsewhere in this document, or in the Bidder's Cost Management System, when negotiating *Hours* for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package.

Elements of *Related Labour Costs* identified in D-3.2 will not be negotiated, but must be included within the *Charge-out Labour Rate*. It is therefore incumbent upon the Bidder to enter values in the above table which will result in fair compensation, regardless of the structure of their Cost Management System.

**D-3.2** Allowance for *Related Labour Costs* such as: Management, Direct Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Inspecting and Reporting, and Estimating must be included as *Overhead* for the purposes of determining the *Charge-out Labour Rate* entered in line D-2b and Article D-3 above.

**D-3.3** A 10% mark-up rate will be allowed for materials and this rate will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in

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the Chargeout Labour Rate. A separate labour component for the purchase and handling of materials or subcontract administration is not allowable.

**D-4 Boat Delivery Proposal**

While the delivery of the boats and all deliverable to destination required by the Contract is desired for **May 31, 2016**.

The best delivery that could be offered is \_\_\_\_\_ weeks after Receipt of Order (ARO).

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**ANNEX E - SUBCONTRACTOR LIST**

Specification Item	Description of Goods/Services (Including Make, Model Number as	Name of Supplier	Address of Supplier

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**ANNEX F - INFORMATION REQUIRED FOR THE VERIFICATION OF INTEGRITY PROVISIONS**

Please provide a list of names of the following entities, according to the ownership nature of the company

1. For a Corporation - each current member of the Bidder's Board of Directors;

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2. For a Partnership, General Partnership or Limited Partnership - the names of all current partners;

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3. For a Sole Proprietorship or an individual doing business under a firm name - the name of the sole proprietor or individual;

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4. For a Joint Venture - the names of all current members of the Joint venture;

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5. For an individual - the full name of the person

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**ANNEX G – BIDDERS’ BID PACKAGE CHECK LIST**

**REQUIREMENT: REQUEST FOR PROPOSALS (RFP): Fabrication and Delivery of 8.3M to 8.6M Rigid Inflatable Boats with Open Consoles, T-Tops and trailers for the Department of Fisheries and Oceans.**

**Instruction to Bidders: Table G-1 is a check list for self-verification purposes.**

**Table G-1 Bidder’s Bid Package Check List**

**G1.1**

Notwithstanding deliverable requirements specified anywhere else within this bid solicitation and its associated Technical Specifications, the following are the only mandatory deliverables that must be submitted with the Bid documents at the time of bid closing. The following are mandatory and the Bidder must be compliant on each item to be considered responsive.

No	Part	Article	Description	Condition	Document provided
<b><u>Section I- Technical Bid</u></b>					
1		Front page	<u>Request for Proposal</u> document part 1 page 1 completed and signed;	Mandatory with the bid	<input type="checkbox"/>
2	3	3.2.1	Annex G-Bidder package Check list	Mandatory with the bid	<input type="checkbox"/>
3	3	3.2.3	Drawing and other documentations	Mandatory with the bid	<input type="checkbox"/>
4	3	3.2.5	Vessel construction experience	Mandatory with the bid	<input type="checkbox"/>
5	Annex H	All	Technical Bid- Annex H Bidder’s RFP reply and evaluation plan.	Mandatory with the bid	<input type="checkbox"/>
<b><u>Section II- Financial Bid</u></b>					
5	Annex D	All	Annex D- Detailed Financial Bid Presentation Sheet	Mandatory with the bid	<input type="checkbox"/>

**G1.2 Supporting Deliverable Requirements**

If the following information which supports the bid is not submitted with the Bid; it will be requested by the Contracting Authority, and it must be provided within 48 hours (3 business days) of the written request:

No	Part	Article	Description	Condition	Document provided
<b><u>Section I- Technical Bid</u></b>					
1	3	3.2.2	Inspection and Test Plan	48 hrs of written request	<input type="checkbox"/>
2	3	3.2.4	Subcontractor list	48 hrs of written request	<input type="checkbox"/>
3	3	3.2.6	Marine Drafting and Engineering capability	48 hrs of written request	<input type="checkbox"/>
4	3	3.2.7	Contractor Quality Management	48 hrs of written request	<input type="checkbox"/>

			system		
5	3	3.2.8	Insurance requirement	48 hrs of written request	<input type="checkbox"/>
6	6	6.5.4	Contractor representative	48 hrs of written request	
<b>Section III- Certification</b>					
7	6	6.9	Welding certification	48 hrs of written request	<input type="checkbox"/>
8	5	5.2.1	Annex F Information required for the Verification of Integrity Provisions	48 hrs of written request	<input type="checkbox"/>
9	6	6.20	Applicable laws	48 hrs of written request	<input type="checkbox"/>

**G1.3 Contract Deliverable Requirements**

The following information may be requested by the Contracting Authority, and it must be provided within the conditions stated in the table below of the written request:

No	Part	Article	Description	Condition	Document provided
<b><u>Other documentation after contract award ( Reminder)</u></b>					
1	6	6.10	Project Schedule	5 days after contract award	
2	6	6.17	Inspection and Test Plan	7 days after contract award	
3	6	6.19	Insurance certificate	10 days after contract award	

**ANNEX H –BIDDER’S RFP REPLY AND EVALUATION PLAN**

**H-1.0 Bidder’s RFP Reply**

The bidder is to reply to the RFP by using the **Table H-1 of this ANNEX- Column B - ONLY**

This is a model for the bidder to use. Table’s contents are fictional and represent a sample only.

STATEMENT OF WORK	BIDDER “ NAME” RESPONSE
2.0 General	2.0 General
2.1 The seventeen foot vessel must be a cock pit design with stowage below the closed bow deck commonly referred as a “Cuddy” style	The proposed seventeen foot vessel features an open cockpit design with stowage below the closed bow deck, commonly referred in the industry as to a “Cuddy” style vessel.
2.2 Not applicable	2.2 Not applicable
2.3 Not applicable	2.3 Not applicable
2.4 All components, equipment and material must be contractor supplied unless addressed as Government Supplied Material (GSM)	Unless stated otherwise, a;; components, equipment and material will be supplied by the <b>“Bidder names”</b>
4.0 Vessel particulars Seventeen foot	4.0 Vessel particulars Seventeen foot
4.1.1 Physical length a) Length- 6.0 to 6.2 M b) Breadth overall Min 2.4 M c) Dead rise Min 16 degrees d) Draft (Outboard down) max 0.9. M e) Draft (Outboard Up) Max 0.5 M f) Freeboard between 0.9. to 1.00 M	4.1.1 Physical length a) Length- 6.19 M b) Breadth overall Min 2.42 M c) Dead rise Min 18 degrees d) Draft (Outboard down) max 0.80. M e) Draft (Outboard Up) Max 0.42 M f) Freeboard between 0.95

**H-1.1 Mandatory Requirements evaluation**

The bidder must use the Statement of requirement Annex “A” numbering sequence for the tables below.

The Bidder shall provide, as part of its Technical Proposal, all documents essential to demonstrate compliance with each technical mandatory requirement, including, without limitation, photographs, maps, drawings, calculations, Original Equipment Manufacturer (OEM) specifications, documents, purchase orders (less cost data), job or Quality Control or Quality Assurance record sheets, personnel resumes, current trade certificates and, other such evidence.

The Bidder itself must meet the requirements of each evaluation item listed below, except as otherwise expressly provided in the evaluation item. If an evaluation item expressly provides that it or any element of it may be met by a subcontractor to the Bidder, then the Bidder shall provide documented evidence of such compliance by its subcontractor. In that event, the Bidder shall also provide evidence that it has a binding commitment with that subcontractor under which the subcontractor will perform services under subcontract with the Bidder under any contract issued pursuant to this RFP, and that such services are of the same type as are specified in the relevant evaluation item.

**Lines annotated with the following symbol “◀ “requires drawing to demonstrate compliance with the requirement**

(Table H-1- Column C- filled by the technical evaluators)

Table H-1 Mandatory Requirement

COLUMN A	COLUMN B	COLUMN C	
Description	Bidder Proposal	Mandatory Requirement	
		Bid Ref Page	Pass / Fail
<b>1.0 OVERVIEW</b>			
<p><b>1.1</b> Rigid Inflatable Boats (RIBs) are used extensively as primary craft for Fisheries and Oceans Canada's fleet of vessels, as well as operating independently to carry out various program-related activities from shore-based facilities and trailers.</p>			
<p><b>1.2</b> The primary mission is fisheries management through catch monitoring and enforcement, including environmental response, search and rescue, emergency boat duties.</p>			
<p><b>1.3</b> The vessel must be configured as a T-Top and Shock seating equipped open RIB with an open fore deck accessible by steps around the side of the console. The vessel will be used to conduct conservation branch operations. The vessel must have an all-weather capability to Beaufort force 8. It is desirable that this vessel has a high-speed capability of at least 40-45 knots.</p>			
<p><b>1.3.1</b> Perform searches and surveillance by visual and electronic means;</p>			
<p><b>1.3.2</b> Tow equipment and other vessels in emergencies; and</p>			
<p><b>1.3.3</b> The craft must be capable of being ship-borne or shore-based: launched and recovered by stern ramp, davits or other means of hoisting such as derricks/cranes utilizing bridle. These craft will be primarily shore-based and will be launched and recovered by a trailer or deployed from a shore facility dock, and occasionally lifted aboard support ships.</p>			
<b>2.0 REQUIREMENT</b>			
<p><b>2.1</b> General Information: This vessel is intended to be built based on stock small working or commercial vessel hull forms with a minimum of customization</p>			

<p>as indicated herein. Prototype hulls will not be considered for this procurement. A minimum of two proven hulls must be shown to have been produced and be in service within the last 5 years for the Contractor to indicate suitability of the hull for this procurement. Bidders must submit at a minimum the following items for each proven hull: General arrangement drawings; Photographs; References; Builder's plates; and, Hull identification numbers confirming the multiple builds.</p>			
<p><b>2.2</b> The Contractor must design, fabricate and supply quantity, two (2) 8.3-8.6m Open Aluminum T-Top Rigid Inflatable Boats (with an option for one additional vessel). The Vessels must comply with Transport Canada Marine Safety Branch (TCMSB) Marine Safety Publications TP 14612 and TP 1332. The boat must be an Aluminum Hull twin outboard motor configuration.</p>			
<p><b>2.3 Technical and Documentation Requirements</b></p>			
<p><b>2.3.1</b> The Contractor is responsible for all aspects of design and production of the vessel and must prepare their own Project Data Package to define the vessel and control the production process.</p>			
<p><b>2.3.2 Bid Deliverable Data Package</b>          Requirements for Bid Deliverables are given in the Solicitation Document and applicable Annexes.</p>			
<p><b>2.3.3 Preliminary Data Package</b>          The Preliminary Data Package must demonstrate that the vessel will be fully seaworthy, operable and fit in all regards for the purposes intended. The Contractor must submit their Preliminary Data Package for review by the Technical Authority and in accordance with the Contract.</p>			
<p><b>2.3.4</b> In addition to any requirements given in the Contract and applicable Annexes, the Preliminary Data Package must include, but will not necessarily be limited to, the following technical drawings and information:</p>			
<p><b>2.3.4.1</b> As identified in TP 14612, have received a certificate of approval following the procedures contained herein.</p>			
<p><b>2.3.4.2</b> A general arrangement.</p>			
<p><b>2.3.4.3</b> Structural Drawings showing Deck Plan, a Centerline profile.</p>			
<p><b>2.3.4.4</b> A detailed Lines Plan.</p>			

<b>2.3.4.5</b> A drawing of the fuel supply arrangement.			
<b>2.3.4.6</b> A drawing of bilge pumping system.			
<b>2.3.4.7</b> Electrical one-line diagram.			
<b>2.3.4.8</b> The lightship weight.			
<b>2.3.4.9</b> Draft Stability Calculation of the proposed vessel.			
<b>2.3.4.10</b> A Project Plan (written description) of how the Bidder/ Contractor will comply with the TSOR. The written description must address each main element of the TSOR and indicate how the Bidder/Contractor will comply with the intent of the TSOR and successfully deliver the vessel(s) to the performance standard(s) identified.			
<b>2.3.4.11</b> A Preliminary Production Schedule which must verify the Bidder/Contractor's ability to deliver the vessel(s) in accordance with the requirements of the Solicitation.			
<b>2.3.5 Construction Data Package</b>			
<b>2.3.5.1</b> The Contractor must revise and update their Preliminary Data Package to incorporate comments from the Technical Authority and must complete and submit their Construction Data Package to the Technical Authority. The Contractor must update their Construction Data Package to reflect changes in the requirement and/or changes in materials or equipment as necessary or when requested.			
<b>2.3.5.2</b> In addition to any requirements given in the Contract and applicable Annexes, the Construction Data Package must include, but will not necessarily be limited to, the following technical drawings and information:			
<b>2.3.3.5.1</b> All technical drawings and information identified within the "Preliminary Data Package", updated as necessary (excepting that the "Project Plan" need not be revised);			
<b>2.3.3.5.2</b> The "Preliminary Production Schedule" must be expanded to a "Production Schedule" which must be regularly updated to demonstrate progress of the work and anticipated completion date;			
<b>2.3.3.5.3</b> Lightship weight and center of gravity calculations must be monitored and the Technical Authority must be advised of changes as they are identified;			
<b>2.3.3.5.4</b> Stability calculations must be			

revised when necessary or when requested;			
<b>2.3.3.5.5</b> Speed and endurance calculations;			
<b>2.3.3.5.6</b> Additional technical drawings, schedules and information as necessary to fully define the vessel;			
<b>2.3.3.5.7</b> Contractor shop drawings;			
<b>2.3.3.5.8</b> Technical information pertaining to materials and equipment;			
<b>2.3.3.2.9</b> Material certificates; and,			
<b>2.3.3.5.10</b> Other applicable technical information.			
<b>2.3.4 Final Data Package</b> The Contractor must provide to Canada all documentation required by the Contract, this TSOR and other annexes or attachments to the Contract.  <b>The minimum acceptable final data package is as attached hereto at Appendix I.</b>			
<b>3.0 DESIGN AND CONSTRUCTION REQUIREMENTS</b>			
<b>3.1</b> Unless stated otherwise all components, equipment and material must be contractor supplied.			
<b>3.2 Ergonomic Design</b>			
<b>3.2.1</b> Hazardous operating conditions must be prevented by arranging machinery and equipment in a safe manner; providing guards for all electrical, mechanical and thermal hazards to personnel; and providing guards or covers for any controls that might accidentally be activated by contact of personnel.			
<b>3.2.2</b> The boat must be designed and constructed to accommodate both male and female crew from approx. 5' 5" to 6' 4" in height, wearing cold weather clothing and equipment in accordance with ASTM F1166-07 Standard Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities.			
<b>3.2.3</b> Human engineering factors considered in design must include accessibility, visibility, readability, crew efficiency and comfort. All equipment must be accessible for use, inspection, cleaning and maintenance as per ASTM F1166-07.			
<b>3.3 Vibration</b>			
<b>3.3.1</b> The boat and all components must be free of local vibration that could endanger boat personnel, damage boat			

structure, machinery or systems, or interfere with the operation or maintenance of boat machinery or systems.			
<b>3.3.2</b> Mounts for movable components, including items moved for stowage, towing or transport must be provided with resilient material as necessary to prevent rattling.			
<b>3.3.3</b> Loosening of fasteners under vibration must be prevented by the use of self-locking fasteners.			
<b>3.4 Equipment Protection</b> The Contractor is responsible for the care of all equipment. All parts, especially those having working surfaces or passages intended for lubricating oil, must be kept clean and protected during manufacture, storage, assembly and after installation. Equipment must at all times be protected against dust, moisture or foreign matter and must not be subject to rapid temperature changes or extremes in temperature.			
<b>3.5 Site Cleanliness</b> During construction, all chips, shavings, refuse, dirt and water must be removed at the completion of the work shift or sooner. The Contractor must ensure measures are taken to avoid wear and damage incident to construction, and to prevent corrosion or other deterioration. Equipment subject to freezing must be kept drained, except during test and trials. Equipment must be kept clean and protected from the environment prior to installation.			
<b>3.6 Materials</b>			
<b>3.6.1</b> All materials must be corrosion resistant and suitable for use in a salt water environment as detailed in the Operational Requirements. All materials normally subjected to sunlight must resist degradation caused by ultraviolet radiation. Galvanized materials are unacceptable.			
<b>3.6.2</b> Dissimilar Metals: Direct contact of electrolytically dissimilar metals is not allowed. Electrolytic corrosion must be prevented by insulating dissimilar materials from each other with gaskets, washers, sleeves, or bushings of suitable insulating material.			
<b>3.6.3</b> Aluminium: Aluminium alloy types 5086-H32 must be used for plate; aluminium alloy 6061-T6 (anodized			

grade), suitable for type 5356 filler alloy, must be used for extruded shapes and 6063 for welded tubing and pipe. Non-structural items of trim and outfit such as hatch frames, castings, consoles, and hardware items may be of other aluminium alloys suitable for commercial saltwater marine use such as dual rated 5083 / 86 or 5052 or 6063-T54.			
<b>3.6.4</b> Stainless Steel: Stainless steel type 316L or 316 must be used for all stainless steel applications except as noted. Alloy 316L must be used in any welded underwater components.			
<b>3.6.5</b> Fittings and clamps must be stainless steel. Bolts used in all fittings must be Type 316 stainless steel.			
<b>3.6.6</b> Where flexible connections are required for steering and fuel systems, suitable hose with permanently crimped, detachable reusable type fittings must be used.			
<b>3.6.7</b> All materials and equipment must be stored installed and tested in accordance with the manufacturer's guidelines, recommendations and requirements.			
<b>3.7 Fasteners</b>			
<b>3.7.1</b> All fasteners must be of corrosion resistant materials.			
<b>3.7.2</b> Cadmium plated parts and fasteners, including washers, must not be used.			
<b>3.7.3</b> Direct attachment of alloys containing copper to aluminium is not permitted except for an electrical bonding strap.			
<b>3.7.4</b> No fasteners must be directly threaded into Aluminum. Aluminium or Stainless steel washers or backing plates must be used as appropriate.			
<b>3.7.5</b> Where nuts will become inaccessible after assembly of the vessel, nuts must be captured or anchored to allow reassembly and prevent backing off. Unless otherwise specified, self-locking nuts must be installed to prevent loosening of fasteners due to shock and vibration.			
<b>3.7.6</b> Fasteners in deck traffic areas must be flush-mounted to eliminate tripping and snagging hazards.			
<b>3.8 Facilities (GRP lamination, collar and painting facilities)</b>			
<b>3.8.1</b> The Contractor must have a shop capable of maintaining temperature and humidity appropriate for temperature and moisture sensitive materials,			

<p>painting and as applicable. It must be capable, when necessary, of maintaining temperature between 16°C and 25°C and maintaining relative humidity below 70%.</p>			
<p><b>4.0 OPERATIONAL REQUIREMENTS</b></p>			
<p><b>4.1 General - ISO Category B design.</b>          Unless otherwise stated, performance must be for conditions of zero sea state and no wind, in salt water in normal load condition. The boats must be designed and constructed for ease of maintenance and repair, long life, and are to be easily supportable in the location of the delivery address of the boat, by local commercial facilities and suppliers. The boat must be expected to have a service life of at least 10 years, with an expected usage of between 300 and 500 hours per year. Life cycling cost projections must be supplied by manufacturer with their proposal, particularly for hull, collar, propulsion, steering and other components and systems.</p>			
<p><b>4.1.1</b> Maximum speed: 40 knots - 45 knots.</p>			
<p><b>4.1.2</b> Minimum speed: 20 knots in sea state 6 with 30-knot wind.</p>			
<p><b>4.1.3</b> Endurance: 35 knots for 4.5 hours.</p>			
<p><b>4.1.4</b> Range: 200 nautical miles with 10% reserve at 25-knot minimum speed</p>			
<p><b>4.1.5</b> Steering: Capable of steering 15 degrees from heading, Beaufort force 7, with seas from any direction.</p>			
<p><b>4.1.6</b> Steer and manoeuvre effectively at 3 knots in Beaufort force 7.</p>			
<p><b>4.1.7</b> Maintain course, made good over ground, when proceeding at 3 knots with relative crosswind of 35 knots.</p>			
<p><b>4.1.8</b> Capable of turning in its own length in Beaufort force 7.</p>			
<p><b>4.1.9</b> Capable of steering effectively in Beaufort force 7 with winds of 30 knots while holding a 15 tonne (displacement) vessel in position.</p>			
<p><b>4.2 Beaching</b></p>			
<p><b>4.2.1</b> Capable of beaching on soft (sand, earth or clay) surfaces at a speed of up to 5 knots without damage to the hull.</p>			
<p><b>4.2.2</b> Capable of beaching on hard (stone or concrete) surfaces at speeds of up to 3 knots without damage to the hull.</p>			
<p><b>4.3 Environmental Conditions</b></p>			

4.3.1 Capable of operating day or night in the following conditions:			
4.3.2 Average ambient air temperature range: -10C to +30 C.			
4.3.3 Average water temperature: 0 C to +25 C			
4.3.4 Wave heights of 7.5 meters (Beaufort force 8)			
4.3.5 Wind speeds of 34-40 knots minimum.			
4.3.6 Operates in freezing spray or freezing rain with accumulations of up to 6.0 mm while maintaining stability while allowing for safe transit in Beaufort force 7.			
4.3.7 Required to operate safely in ice infested waters, (some minor damage to the boat, not affecting stability or buoyancy is acceptable).			
<b>4.4 Launching, Recovery &amp; Transportation</b>			
4.4.1 The craft must be readily road transportable on a trailer, must be able to be launched and recovered using the trailer at existing launch ramps.			
<b>4.5 Maintenance</b>			
4.5.1 The craft must be designed and constructed for ease of maintenance and repair, long life, and be easily supportable by local commercial facilities and suppliers.			
<b>5.0 PHYSICAL CHARACTERISTICS</b>			
<b>5.1 Vessel Particulars</b>			
5.1.1 Length overall between 8.3 and 8.6 meters.			
5.1.2 Breadth overall between 3.0 to 3.2 meters.			
5.1.3 Maximum draft (outboard motors lowered) between 0.70 and 0.90 meters.			
5.1.4 Maximum draft (outboard motors raised) between 0.50 and 0.70 meters.			
5.1.5 Maximum freeboard (from top of collar AFT, in normal load condition) 0.70 meters.			
5.1.6 Open Style; full beam deck between tube cradles.			
5.1.7 Open RIB that is not higher than 13.5 feet tall that has a radar arch that may fold to that height if necessary. Dual position shock seating at T-top console. Dual auxiliary fold up jump seats to be fitted behind the console seating.			
5.1.8 Depth Under Keel:			
5.1.8.1 Operate carefully in depths of 1.0 meter with outboard motors lowered.			

5.1.8.2 Basic manoeuvring in depths of 0.90 meters with outboard motors in the partially raised position.			
5.1.9 Maximum height of collar above deck 0.60 meters			
5.1.10 Displacement (Normal Load Condition) between 3100 kg and 3300 kg.			
5.1.11 Normal Load Conditions:			
5.1.11.1 Crew of 4 = 450kg (max capacity min 10 persons).			
5.1.11.2 Fuel = Minimum 1000 liters in two tanks, (Total 719kg).			
5.1.11.3 Equipment & supplies = 700kg.			
5.1.11.4 Payload capacity to be min 1000kg in addition to full fuel.			
<b>6.0 CONSTRUCTION STANDARDS</b>			
6.1 Boats constructed under this TSOR must comply with the following:			
6.1.1 The current TCMS TP 1332 "Construction Standards for Small Vessels" and where applicable the American Boat & Yacht Council (ABYC), and			
6.1.2 CSA C22.2 No. 183.2-M1983 (R1999) Standards for DC Electrical Installations on Boats and ABYC 'E' Electrical Standards.			
<b>6.2 Transport Canada Marine Safety Regulation TP 1324 Coated Fabrics</b>			
6.2.1 Transport Canada Marine Safety Regulation TP 1324 Coated Fabrics as a minimum, however, if the IMO requirements exceed those of TP1324, the more stringent of the two must take precedence.			
<b>6.3 CSA W47.2-MI987</b>			
6.3.1 Certification of Companies for Fusion Welding of Aluminium; Welding to be done by contractor with shop certified to this standard.			
<b>6.4 CT-043-EQ-EG-001-E</b>			
6.4.1 Welding of the hull and components must meet the requirements as identified in the Canadian Coast Guard Welding Specification, March 2014 edition. Supplied as a separate attachment to the TSOR.			
<b>6.5 Stability Calculations</b>			
6.5 Stability examination per TP1332 (from ISO standards 12217 and ISO 6185 RIB's over 6m) will require the Contractor to record all stability calculations and trial results and provide a copy for each boat produced, to be placed in the technical manuals.			

<b>7.0 VESSEL CONFIGURATION</b>			
<b>7.1 Open T-Top Vessel Configuration</b>			
<b>7.1.1 General Deck Arrangement:</b>			
<b>7.1.1.1</b> There will be at least 3 tie up points from bow to transom. One cruciform tow post forward, 2 cleats aft that are mounted to the transom corners or the self-righting frame.			
<b>7.1.1.2</b> Vessel will be outfitted with a lighting, and self-righting supporting arch, per section 9.9, including a supporting a lash back screen and tow reel with 100m of 3/4" tow line. Contractor to identify location of tow post in relation to tow reel.			
<b>7.1.1.3</b> A dual position console, with four seating positions, two being located aft of the helm seating, must be integrated with a T-Top with windshield, and support radar and lighting, see below.			
<b>7.1.1.4</b> There will be a tow post fitted in the vicinity of the transom used for EMERGENCY towing, rated for 3000 lb. (1360 kg.), ahead of the thrust point of the craft taking into consideration the placement of the tow reel.			
<b>7.1.1.5</b> There will be two removable bow rails one on either side of the forward tow post used for boarding vessel. The bow rails when removed will not be a snagging (nets) or tripping hazard			
<b>7.1.1.6</b> Vessel must be fitted with aluminium protective pipe bracket, which extends around the outside of the outboard motors. This guard must be fabricated so as to be easily removed to facilitate the removal of the outboard engines.			
<b>7.1.1.7</b> There shall be three storage lockers forward of the T-Top. All storage lockers must have a drain of a large enough diameter that does not easily plug built into the hatch cover. All hatch covers and doors will allow for the door to open while a gloved hand is gripping the hand hold and that the hand hold can be locked with a pad lock.			
<b>7.1.1.8</b> First the bow locker that also secures the fuel filler must allow water to drain through to the bilge of the vessel but must be screened so that it does not allow gear or equipment to leave the compartment. The bow locker must be a minimum of 17" from front to back, 27" wide at the forward portion of the locker and 37" at the aft portion of the locker			

and as deep as possible that the hull will allow.			
<b>7.1.1.9</b> The second locker should be a freeman style hatch that creates the maximum storage space possible but must be screened so that it does not allow gear or equipment to leave the compartment. The hatch will be 18 inches wide and 11 ¾ from front to back.			
<b>7.1.1.10</b> The third locker must be watertight to store dry goods equipped with a drain inside and be constructed in a way that allows water from the bow to pass underneath but not through the storage locker. The locker must have a drain in case water does enter the locker. The hatch for the locker should be a minimum of 41" from front to back and 21" wide. The locker must be a minimum of 56" from front to back and 40" wide with a minimum depth of 17".			
<b>7.1.1.11</b> There must be two self-draining (one sump and pump for both boxes) seizure lockers, one each P&S in the cockpit deck outboard aft. Size to be a minimum of 42 inches long, 11 inches deep and a minimum of 22 inches wide at the widest portion. With a hatch door that is able to hold itself open by a gas shock or equivalent option.			
<b>7.1.1.12</b> Vessel must be equipped with securing eyes fitted to the outside of the transom used for trailer tie downs, and bow eye for towing and trailer tie down.			
<b>7.1.1.13</b> Deck Davit: The Contractor must supply and install Safe-T Puller Light Commercial Model (Part #STP-2100) pot puller with 2.1 HP 12 volt electric power head, stainless steel self-grip sheave, air bellows foot switch and solenoid, 8 gauge wiring harness, 80 AMP circuit breaker, 2" schedule 80 aluminium davit, UHMW plastic sleeved side deck /cabin bulkhead bracket, and kick-plate bracket with stainless steel quick release pin. Secured to the top when not in use and can lock in place with the pin. The davit arm and upper swivel portion must be removable and stowed in the largest below deck hold. The davit needs to be rated for a minimum of 500lbs.			
<b>7.2 Seated or Standing Console, with Windscreen and T-Top</b>			
<b>7.2.1</b> T-Top console to be constructed to low weight, high strength specifications from aluminium to withstand the accelerations of the vessel while in			

<p>extreme service conditions. Successful construction methods presented include main console construction of 3/16" plate, braked at the corners, with tiered and/or sloped top surfaces for installation of controls and electronics. Alternate construction method using 2" schedule 40 pipe framing with plate panels filling the console and window faces is also commonly used. Weight and structural integrity are paramount concerns. The T-Top aft width from tube cradle to T-Top must allow sufficient space for water to rapidly drain aft from the forward cockpit.</p>			
<p><b>7.2.2</b> The T-Top shall be at least 54" wide at the forward side, 62" wide at the aft portion of the console, the height from floor to top of the roof must be at least 81" high, and the length of the roof must be at least 84" long.</p>			
<p><b>7.2.3</b> An overhead hinged console must be fitted with space adequate for two VHF radios, which must not protrude into the headroom of operators standing ahead of seating.</p>			
<p><b>7.2.4</b> The operator console must have weather tight aft face access hatch below the console dash. There must be a weather tight hatch or door in the forward face of the main console to access the space below the console for electrical equipment and console electronics access. The inside of the door will have a storage bin mounted to the door with recessed fasteners.</p>			
<p><b>7.2.5</b> Handholds of minimum 3/4" schedule 40 pipe must be positioned on the aft, top edge of the upper console and across the forward face above the electronics access door. In addition, pipe rails must run up the outboard edges of the forward window frame, tilted away from centre so as to provide minimal visual obstruction to forward operators.</p>			
<p><b>7.2.6</b> There must be a forward window and side windows on the console. The space on the console top must be long enough fore and aft so that there is a writing area at the navigation position, that is weather protected, the area must be large enough to have a writing surface for note taking and document writing and a hatch for a storage compartment that is a minimum of 17" wide and 15" from front to back and</p>			

<p>10" deep. The compartment must be made to have a portion for legal hanging folders and the rest of the room for glove box style storage. Forward window to be equipped with bottom mounted, wide sweep, pantograph wiper system. The aft sweeping forward corner frames must also be equipped with air dams to control air and water "wrap" of the window corners. Dams to continue aft and direct water to the aft corners of the T-top. Side and aft pipe handrails must be provided on the T-top roof frame to provide handholds when standing on tubes or aft deck. These handrails to integrate with the forward window frame corner rails.</p>			
<p><b>7.2.7</b> The T-Top must be supported at forward corners of the console top, and have sufficient strength to support the T-Top without additional support posts aft of the helm, with overhang aft sufficient to extend past the aft 'jump seat' positions.</p>			
<p><b>7.2.8</b> The console must be fitted with a "Sunbrella" cover, twist lock attachment to the overhead and hanging down immediately aft of the side windows and aft console corners, securing to the console. The purpose of the cover is to protect the console electronics from moisture and spray when the boat is travelling or unattended. The T-Top console to be constructed to low weight, high strength specifications from aluminium to withstand the accelerations of the vessel while in extreme service conditions. Successful construction methods presented include main console construction of 3/16" plate, braked at the corners, with tiered and/or sloped top surfaces for installation of controls and electronics. Alternate construction method using 2" schedule 40 pipe framing with plate panels filling the console and window faces is also commonly used. Weight and structural integrity are paramount concerns.</p>			
<p><b>7.2.9</b> A seat cover must be constructed that will cover all four seats and keep them dry when the vessel is left in the elements.</p>			
<p><b>7.2.10</b> T-Top sides must be flared out from front to back with aft corners coming next to tube cradle inner fastening channel allowing sufficient space for water to drain aft from forward cockpit area.</p>			

<b>7.2.11</b> There must be a step fore and aft mounted to the T-Top on both sides to step up onto the tube set.			
<b>7.2.12</b> Hand Holds – (to be a minimum of ¾" schedule 40 pipe).			
<b>7.2.13</b> There will be a hand hold rail extending from above the side window, around the roof edge to the other side.			
<b>7.2.14</b> There will be a vertical hand hold, each side, extending aft from the roof base down to the base of the side window.			
<b>7.2.15</b> There will be a hand hold across the aft edge of the horizontal plane of the navigator position. The fastening base of this hand hold will extend from side to side under the hand hold.			
<b>7.2.16</b> There will be a hand hold on each side, below the side window, extending from front to back on side of T-top.			
<b>7.2.17</b> There is to be a vertical hand hold extending the full height of the windshield, tilted away from the center so as to provide minimal visual obstruction to forward operators.			
<b>7.2.18</b> There will be a hand hold extending across the full width of the front of the T-Top, positioned above the forward door allowing sufficient space for the door to open while a gloved hand is gripping the hand hold.			
<b>7.2.19</b> A large lockable 'glove box' locker to be fitted in the T top console.			
<b>7.3 Horizontal top Surface of Console</b>			
<b>7.3.1</b> The surface shall be sufficient in size to allow for a laptop computer station to be installed in front of the helm position.			
<b>7.3.2</b> The surface area in front of the navigator position shall be sufficient in size for the following:			
<b>7.3.2.1</b> A writing area sufficient in size for a note book binder;			
<b>7.3.2.2</b> A lockable glove box. This will extend down below the writing surface and be divided in two. One area will be designed to support hanging legal file folders and the other area large enough for storage of different items, i.e. note books etc; and			
<b>7.3.2.3</b> Above the console will be a communications area housing the different electronics. The electronics are to be accessible by the helm and navigator.			
<b>7.3.3</b> There will be overhead red LED			

<p>(4) and white LED (4) lights positioned over the console. There is to be red LED (4) and white LED (4) lights over the two aft seat positions. The red lights are to be dimmable.</p>			
<p><b>7.3.4</b> There is to be 2 LED lights installed inside the T-top storage compartment</p>			
<p><b>7.3.5</b> There is to be space for a David Clark control head and also head set hangers installed on underside of the T-Top roof. The hangers must be located above each seat centred so that they can be easily hung up and must not fall off if the vessel is being operated in rough weather.</p>			
<p><b>7.3.6</b> The top roof portion is to have a continuous water dam which will extend from the front along the side and across the back continuing along the other side to the front. This dam is to be attached in a manner that will not allow water to leak underneath.</p>			
<p><b>7.3.7</b> There is to be two drains, one each corner of the aft roof just forward of the water dam. These water drains will take water down from the roof and discharge it on the deck at the bottom of the T-top (integrated into hand holds).</p>			
<p><b>7.3.8</b> Foot rail. The standard will be that there is an aft face door, the foot rail will need to be configured to meet the above requirements of use, and, allow for the door to open to a minimum of 90 degrees. If there is no door there can be one continuous foot rail from side to side on the aft face of the T-top.</p>			
<p><b>7.3.9</b> The throttle wedge must have removable covered padding that matches the covering on the seats attached that will cushion the impact of the crew min 1 inch thick.</p>			
<p><b>7.4 Access Doors into T-Top</b></p>			
<p><b>7.4.1</b> There is to be a large, lockable (w/padlock), access door into the forward face of the T-top. This door is to be weather tight and the locking latch handle is to be of sufficient size to be operated with a gloved hand. The door is to have a pneumatic shock to have the door held steady in the open position. The inside of the door will have a storage bin mounted to the door with recessed fasteners. This door will be hinged on the port side and open towards the port side towards the gear hauler post. The door may have a catch</p>			

mounted to the davit post and the door to keep it open.			
<b>7.4.2</b> There will be a smaller lockable access door in the aft face of the T-top below the console. This door is to be weather tight and the locking latch handle is to be of sufficient size to be operated with a gloved hand.			
<b>7.4.3</b> The windshield for the T-top is to have a Category B rating and will be in the appropriate metal frame.			
<b>7.4.4</b> Windshield washer tank and sprayer on front windshield.			
<b>7.4.5</b> Side windows will be in metal frames.			
<b>7.4.6</b> There is to be a bottom mounted windshield wiper of the pantograph style. This control for this wiper will also have a deal function.			
<b>7.4.7</b> The T-Top is to be fitted with a "Sunbrella" type material which will be fastened from each side around the back. This will extend from the roof of the T-top to the deck. It is to be fastened with twist locks and grommets that do not come in contact with dissimilar metals. The upper part of the Sunbrella enclosure will have clear plastic panels allowing the helm side and aft visibility. Each side is to have a large zipper door, that when unzipped can be rolled up and securely fastened in the up position. The same will apply to the aft section of the enclosure allowing it to be unzipped and rolled up and fastened.			
<b>7.5 Seating and Stand-Up Operation</b>			
<b>7.5.1</b> Two shock mitigating seats are required with two additional rear, forward folding jump seats behind the operator positions. Aft seats to be jockey style with pommel pipe handhold and secure footrests, the rear seats must be two Shockwave S2 Jump seats with arm rests and seat belts. When the seats are in the folded upright position it should still provide a hand hold for a person should they choose to stand.			
<b>7.5.2</b> Forward seating to be 'Shockwave' G-Force type seats with height and slider adjustment, on stands, with fold up seat edge to act as support for operators when folded up and driving in a standing position. Seats to have spring loaded footrests, folding arms, and seatbelts. The seat base must be wide enough to have the forward seats			

positioned in line with the foot rest in both the helm and starboard seating position inside the T-Top.			
<b>7.5.3</b> The seat mounting area to be suitably reinforced and framed to support the full G-load capability of the shock mitigation seating.			
<b>7.5.4</b> The seating bases, if any, are to be equipped with lockable stowage if adequate space is available. Seat base slider must be used to facilitate equal facility to use console equipment in seated or standing position			
<b>7.5.5</b> Seats must be designed to support a person of 150 kg			
<b>7.6 Console Lighting</b>			
<b>7.6.1</b> There must be a red chart lamp on the communications side of the console, for the navigator with switch, and dimmer.			
<b>7.7 Foot Rests</b>			
<b>7.7.1</b> There must be pipe foot rest(s), servicing forward positions at the console, for use when standing while operating. Foot rests and seats are to be such as to allow clearance for legs so that they do not have to be angled in order to place you feat on them while in the seated position.			
<b>7.8 Console Utilities</b>			
<b>7.8.1</b> There is to be a 30 AMP shore power connection, complete with breaker and an electrical outlet inside the T-top.			
<b>7.8.2</b> There is to be a battery charger, with a minimum of 3 banks and 20 AMPs to charge batteries.			
<b>7.8.3</b> Battery connections will be arranged for cross connection of start and house batteries and for charging by motors and shore power when plugged into shore power.			
<b>7.8.4</b> All switches mounted on the dash and overhead communications panel shall be waterproof.			
<b>7.8.5</b> Main switch panel shall be of the waterproof and breaker style with a minimum of two spares.			
<b>7.8.6</b> All gauge back lighting shall be dimmable. Compass must be on a separate dimmable switch.			
<b>7.8.7</b> The T-Top must be equipped with a diesel heater (water heat piped from transom) capable of heating the windshield and the enclosed T-Top area of the vessel with a 20% reserve BTU			

rating; model10DW ESPAR or equal.			
<b>7.8.8</b> Outlets from the diesel furnace must be located min. 2 in the aft face of the T-Top both port and starboard sides below the dash and 4 min facing the windshield.			
<b>7.8.9</b> The front windshield defroster(s) and heater must have a variable three-speed fan and be capable of clearing the entire front windshield area of the vessel. Heater switching and defrosting controls to be mounted on the dash, navigator's position.			
<b>7.8.10</b> The front windshield defroster must be capable of blowing both cold and heated air.			
<b>7.8.11</b> The fuel reservoir for the furnace must be approximately 10 litre capacity, (with marked diesel fill near lazarette box that must be lockable).(lazarette box doors must be lockable with a pad lock and able to be opened with a gloved hand.			
<b>7.8.12</b> Compass, map light and red LED lights shall be dimmable.			
<b>7.8.13</b> All switches are to be labelled.			
<b>7.8.14</b> Fuses and breakers are to be labelled.			
<b>7.8.15</b> Two charging 12 volt USB ports shall be provided on the dash.			
<b>7.9 Dash and Helm Station</b>			
<b>7.9.1</b> The Helm station will be on the Port side of the console, with controls on center.			
<b>7.9.2</b> The helm will incorporate a steering system, capable of handling the horsepower of the vessel, with manufacturers' engine controls designed for the power units.			
<b>7.9.3</b> There will be provision for an array of control gauges and electronic equipment at the helm position, see electronics section 8.7.			
<b>7.9.4</b> In addition, if not included with above gauge package, outboard trim gauges, and fuel level gauge(s) will be installed.			
<b>7.9.5</b> There will be a console mounted magnetic compass.			
<b>7.9.6</b> All lights switches and breakers must be within easy reach of the helmsmen.			
<b>7.9.7</b> In addition to the factory supplied individual propulsion leg trim controls there will be a SYNCRO trim switch to integrate the outboard controls on one switch.			

<p><b>7.9.8</b> Space required for future additional installations, e.g. for trim tab controls.</p>			
<p><b>7.9.9</b> On either side of the throttle wedge there will be padding to avoid contact from legs resting on the foot rails while in the seated position.</p>			
<p><b>7.10 Navigation Lighting and Equipment – LED options must be used where available.</b></p>			
<p><b>7.10.1</b> Blue and blue, mini light bar (Tomar 970L scorpion or equal) to be installed above the radar scanner, and to be approved by DFO TA.</p>			
<p><b>7.10.2</b> Whelen Siren c/w Speaker to be mounted to the T-Top.</p>			
<p><b>7.10.3</b> The Contractor must supply and install an electric horn that meets the requirements of the Collision Regulations. The horn must be operated by a spring-loaded switch located on the operators' console. The "Signal tone", or Ongaro electric horns meet this requirement.</p>			
<p><b>7.10.4</b> Navigation lights must be permanently fitted to the T-Top with protected wiring and must be waterproof. The fitting of a combined navigation sidelight lantern on the inflatable collar will not be acceptable. All around mast /anchor light ratchet mast mounting is acceptable.</p>			
<p><b>7.10.5</b> The fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage that may occur when lying alongside a vessel or a pier. (The Hella NaviLED Series of lights, including the NaviLED 360 all-round light , and NaviLED side lights meet this requirement.)</p>			
<p><b>7.10.6</b> Non-white lighting must be wired together on a separate breaker of the 12 volt DC electrical system. All around Mast /Anchor light showing clear above the radar scanner as per TP 1332. One three way rocker switch, labelled "NAV" which turns on all Nav lights. When switched to the "ANC" side, only the anchor light is on.</p>			
<p><b>7.10.7</b> Magnetic Compass: The Contractor must provide and install a direct read compass, with light and its own dimmer switch. (The Ritchie Helmsman 70 series meets this requirement.)</p>			
<p><b>8.0 CONSTRUCTION</b></p>			
<p><b>8.1</b> Aluminum hull, deck, console and T-</p>			

top.			
<b>8.2 Structural Integrity</b> - All structures and components (hull, deck, collar, console, seating, etc.) must be of sufficient strength to withstand, when in a Maximum Load condition per builders' plate, the lateral and vertical impact loading that equates to the conditions of the operational profile and mission requirements			
<b>8.3 Hull shape</b> must not impede water flow to the propulsion units and must direct spray and waves away from onboard personnel.			
<b>8.4 Watertight and Tank Bulkheads:</b> The hull design must be such that a sufficient number of watertight compartments, including hull compartments, and/or low smoke and flame spread closed cell flotation foam, or fire retardant flotation, or flotation devices, will allow for adequate stability and positive buoyancy in a flooded condition. See references to vessel certification, re: TP 1332 / ISO testing.			
<b>8.5 Hull and Deck:</b> The hull, and deck, must be constructed of Aluminium. Aluminium materials must be per Sec 3, Material and Construction.			
<b>8.6</b> The hull is to be a minimum 24 degree (transom) dead rise "V" style monohull with a reverse chine flat and hull bottom to incorporate minimum one substantial (~1.5" vertical, aft, located approx. mid bottom panel) or a combination of smaller spray strakes on the bottom, per side, which run out to the stem. Dead rise at 25% aft to hull transom from the main chine at stem must be minimum 32 degrees.			
<b>8.7</b> The hull and decks are to be transversely framed and longitudinally stringered (minimum of four per side).			
<b>8.8 Hull and Deck</b>			
<b>8.8.1</b> The T-Top must be fitted leaving sufficient unobstructed forward deck space to allow for securing a basket litter or similar device, with sufficient access alongside the device to carry out First Aid to a patient within. Sufficient unobstructed space must remain aft of the T-Top and seats to provide safe access to towing arrangements and propulsion equipment.			
<b>8.8.2</b> The layout of the T-Top must take into account ergonomic considerations,			

with easy viewing and access to all critical instruments and controls.			
<b>8.8.3</b> The deck to have high capacity, 4" dia. minimum, self-draining ports, and must be fitted with mechanical closures for the drains to prevent water ingress while the vessel is stopped, (elephant trunk style).			
<b>8.8.4</b> The deck above the watertight compartments must have bolted watertight centerline access plates / hatches for easy removal to allow for repair of tanks or buoyancy compartments beneath, and separate access plates for inspection access to the fuel system components as per TP 1332.			
<b>8.8.5</b> Buoyancy Foam- Must be Fire Rated (FR), or Low Smoke and flame spread, closed-cell foam installed to perform the required stability functions and isolated from fuel tank spaces by main girders or bulkheads with any foam accesses through these members closed by cover plates.			
<b>8.8.6</b> Fuel tank spaces to have ventilation flow through from bow to stern (ignition protected fan assist on start-up).			
<b>8.8.7</b> The deck is to have 4 lifting lugs that are out of the way of traffic and not a trip hazard.			
<b>8.8.8</b> Flush mounted deck tie downs must be fitted on the Tube Cradle in the forward deck area for the securing of deck cargo. (Minimum of 4 required.)			
<b>8.9 Stowage</b>			
<b>8.9.1</b> Arrangements must be provided for safe, secure and accessible stowage of an anchor, chain and rope, cable, paddles, and other equipment.			
<b>8.9.2</b> Weather tight stowage for small items of equipment must be provided in void spaces beneath seats, T-Top, and where practicable.			
<b>8.9.3</b> All exterior stowage compartments must be lockable with a pad lock, secured by positive means and operable by gloved or insensitive hands.			
<b>8.9.4</b> The configuration of these holds are explained in greater detail in sections 6.2.1.7 to 6.2.1.11.			
<b>8.10 Beaching Shoe</b>			
General description - Aluminum.			
<b>8.10.1</b> The bow must be constructed with aluminum armouring to allow hard rock beach landings while in a swell. It			

must protect the hull from damage when landing at low speeds.			
<b>8.10.2</b> Length - full length - from transom to underside of chine flat at bow.			
<b>8.11 Tow Eye</b>			
<b>8.11.1</b> A system is to be designed and incorporated into the construction of the stem that allows for the bowline and or trailering hook to be attached to the bow. The fitting must be T316 stainless steel and of sufficient strength to allow for towing the vessel at a speed of 20 knots in calm water in the normal loaded condition, on an even keel without damaging the vessel or causing undue chafing of the towline.			
<b>8.12 Tow Posts</b>			
<b>8.1.2.1</b> The tow posts are to be stamped and highlighted with the Safe Working Load (SWL) of each post, clearly visible.			
<b>8.12.2</b> One tow post, for EMERGENCY towing, with towing bits must be fitted aft, rated for 3000 lb. (1360 kg.), it must be mounted in the transom to save deck space.			
<b>8.12.3</b> One removable cruciform tow post (tow capacity 3,000 lb. minimum) is to be fitted at the bow.			
<b>8.13 Collars</b>			
<b>8.13.1</b> Collar must be an inflatable type 24" diameter with at least 5 separate chambers of approximately equal volume, each fitted with a suitable inflation system and over-pressure relief valves calibrated to 3.5 psi. (the Halkey Roberts model 690BV inflation valve and the Mirada model B51019 3.5 psi over pressure relief valve, meet this requirement).			
<b>8.13.2</b> Inflatable collars fitted must be constructed of material that meets the criteria for strength, elasticity, resistance to wear and longevity as defined in TP 1324. Collar material must meet a minimum strength requirement of 1880 Decitex Neoprene / Hypalon coated nylon fabric and must be Neptune or Military grey in colour.			
<b>8.13.3</b> Inflatable collars must be attached to the hull using mechanical fasteners in such a manner that the collar can be easily removed for repair or replacement. The use of screws and lag bolts or glue-on type collars is not acceptable.			
<b>8.13.4</b> The inboard side of the tube,			

<p>from the fastening flange up to the grab line flange is to be covered with a black EDPM from the front port side of the T-top all the way around forward to the starboard side of the T-Top.</p>			
<p><b>8.13.5</b> Collar to be supplied with two pair of step treads (EPDM or eq.) installed in way of the cockpit access and a transom tube tensioner.</p>			
<p><b>8.13.6</b> Inflatable collars must be provided with minimum 5 protective black wear strips all around, of extruded neoprene rubber, or equivalent, rubbing strakes (minimum 75mm wide, 'Bombard' style) to be glued along the entire length of the outboard side of the collar to provide protection against abrasion and puncture. The bottom of the inflatable collar wetted surface of the tubes must have a protective layer of material installed. (EPDM or equivalent.)</p>			
<p><b>8.13.7</b> Grab lines of non-twisting nylon braided rope construction ½" diameter, must be fitted along the collar on both the port and starboard sides to provide access from both within the boat and for persons in the water. Grab lines must be mounted on the centreline of the collar, by means of a lacing cuff (not by D-Ring attachment.</p>			
<p><b>8.13.8</b> Mechanical fastening of the tube set above the head log must be done with flush mounted fasteners. In addition, a piece of "D" rubber, the length of the head log is to be used at the base of the tube fastening. This will prevent a pinch point of the tubes. Should the bow section be placed against a solid object.</p>			
<p><b>8.13.9</b> A repair kit must be provided for inflatable collars.</p>			
<p><b>8.13.10</b> All seams are to be hand buffed and glued.</p>			
<p><b>8.13.11</b> Polyurethane sealant should be used on all interior seams and baffle edge.</p>			
<p><b>8.13.12</b> Foot pump, with correct valve fitting to be supplied (bellows type, for floatation collar.</p>			
<p><b>8.13.13</b> A protective cover on the bow which will extend over the outer tube and extend from the bow to the down each side to opposite to the aft face of the bow. This cover is to be mechanically fastened at the bottom and fastened to the grommet strip (lacing cuff) at the top. . It should wrap the bow</p>			

(collar only) from collar top centerline to collar/hull joint and extend approximately 4' (1.25M) aft down each side of the collar.			
<b>8.13.14</b> An operator activated semi-auto inflation system must be installed, to manually direct optimal inflation of all chambers. System must have hard plumbed manifold, with pressure gauge, and selection valving for chamber, and pressure valve for directing filling at up to 5 PSI. System to have a manual, ball valve actuated deflation of all chambers, operable from inside the T-top and discharging to exterior of cabin. 12 volt compressor to produce pressure and flow rate to inflate, all chambers being open, in 10 to 15 min. Pipe threaded outlet and filtered air intake required.			
<b>9.0 Outfitting Equipment</b>			
<b>9.1 Lifting</b>			
<b>9.1.1</b> The vessel must be equipped with a four-(4) leg, webbing lifting bridle, which may require a spreader bar. The location and arrangement of lifting gear must be such that it does not pose a safety hazard to the operator or crew nor interfere with boat operation.			
<b>9.1.2</b> All bridle lifting lugs must be reinforced and proof tested in accordance with CSA Tackle Regulations and must comply with IMO regulations for 6:1 safety factors.			
<b>9.1.3</b> Lifting points must not be located below the deck or within lockers or compartments. Lifting points must be located in such a manner that they are out of traffic areas and are not a tripping or snag hazard.			
<b>9.1.4</b> Lifting points must be located so that the bridle does not snag on the boat structure, outfit or machinery			
<b>9.1.5</b> Lifting slings provided must be webbing strap type certified to safely lift the vessel in the Normal Loaded condition. Test margin 200% for four straps, or per CSA if higher standard.			
<b>9.2 Electrical</b>			
<b>9.2.1</b> The electrical system design, component selection and installation must be in accordance with Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats", and TP1332 and/or ABYC 'E' as referenced by TP1332. All electrical			

equipment and hardware must be installed in accordance with the manufacturer's specifications.			
<b>9.2.2</b> Twelve Volt (12V) DC distribution system must be provided to power the engine starting and boat service loads including:			
<b>9.2.2.1</b> Navigation lights;			
<b>9.2.2.2</b> Exterior Lighting;			
<b>9.2.2.3</b> Navigational equipment;			
<b>9.2.2.4</b> Instrumentation;			
<b>9.2.2.5</b> Bilge Pumps			
<b>9.2.2.6</b> Electronics			
<b>9.2.2.7</b> Communications; and			
<b>9.2.2.8</b> Ancillary Items			
<b>9.2.3</b> All fitted electrical equipment must be capable of operating simultaneously with any other fitted electronics equipment without causing interference to any electronic equipment or to the magnetic compass.			
<b>9.2.4</b> All electrical equipment must be readily accessible for performing maintenance.			
<b>9.2.5</b> Four (4) marine quality 12V power outlets one must be installed at or near the bow locker, one on the front of the T-Top, one on the back side of the T-Top console and one on the Lazerette near the transom. There must be two USB charging ports on the dash that are water resistant or covered.			
<b>9.3 Batteries, Cables and Charging Systems</b>			
<b>9.3.1</b> Twelve (12) volt DC distribution system must be provided to power the engine starting and boat service loads including: <ul style="list-style-type: none"> <li>• Navigation, interior, and exterior lighting;</li> <li>• Electrical equipment;</li> <li>• Instrumentation, and</li> <li>• Bilge pumps and alarms.</li> </ul>			
<b>9.3.2</b> Batteries must be marine grade, 12 V, deep cycle maintenance free glass mat or gel type(no custom batteries), and with the ability to cross connect for twin-engine start-up of either engine from either battery where the system has a house battery in addition to the start batteries, the house battery shall be able to be joined to the start batteries if necessary. Some engine packages may require larger capacity for injection systems, see Sec.17, Outfitting.			
<b>9.3.3</b> Battery switch must be Certification Agency, (CE, CSA, USCG, etc.) approved and must be mounted to			

prevent snagging or accidental switching			
<b>9.3.4</b> Battery compartment must be weather tight and fitted with a suitable means of gas venting including for 'sealed' batteries.			
<b>9.3.5</b> Cables for all electrical distribution must be ample in size for the particular service, of marine grade tinned boat cable.			
<b>9.4 Cabling Installation</b>			
<b>9.4.1</b> Cables must be grouped into wiring harnesses wherever possible. All wiring harnesses must be routed below deck. All below deck cabling must be through conduit pipe.			
<b>9.4.2</b> Cabling / conductors passing through watertight boundaries, decks, bulkheads or other exposed surfaces must be installed to maintain watertight integrity of the structure. Cable entry into watertight enclosures must be through watertight marine glands of suitable size. All electrical equipment must be readily accessible for performing maintenance.			
<b>9.4.3</b> Cables and conductors must be supported with clamps or straps at least every 18 inches on horizontal runs and every 14 inches on vertical runs.			
<b>9.4.4</b> Cabling / conductors passing through structures without watertight glands, must be protected against chafing by the use of abrasive resistant grommets.			
<b>9.4.5</b> Routing cables through foamed spaces must be avoided wherever possible. Cables that must be routed through foamed spaces must be run in PVC conduit pipe. The pipe must be arranged in a manner that prevents water from becoming entrapped in the pipe.			
<b>9.5 Batteries, Cables and Charging Systems</b>			
<b>9.5.1</b> (2) Dedicated starting batteries for the outboard engines. Dual-battery system, minimum 750 cranking amps with dual-battery selector switch mounted in a recessed position that conforms to engine manufacturer's specifications.			
<b>9.5.2</b> One (1) battery for the house load, minimum 55 Ah/120 minute reserve capacity.			
<b>9.5.3</b> The starting batteries and the house battery must be positioned in the T-top console with a cover for each the three batteries. All Batteries must be			

group 27 or better Glass Matt or Gel. Batteries must be readily available commercial product (no custom batteries).			
<b>9.6 Utility Lighting – All lighting to be LED power management is critical due to volume of electronics.</b>			
<b>9.6.1</b> Contractor must supply two (2) handheld search lights for the vessel. Each light must be 12 volt and must produce 1 million candela. Four 12V power points required, one each on forward face, and dash (communication side) of console, and near the tow post forward, and at the transom.			
<b>9.6.2</b> The LED deck flood lights (6 of) of be fitted on the T-Top of the vessel, 2 facing towards the bow on the front corners, 1 each facing to the port and starboard and 2 facing towards the rear. Rigid brand or equivalent.			
<b>9.6.3</b> Tube cradle/ console (6) mounted LED deck illumination lights switchable from white to red.			
<b>9.6.4</b> There will be overhead red LED (4) and white LED (4) lights positioned over the console . There is to be red LED (4) and white LED (4) lights over the two aft seat positions. The red lights are to be dimmable.			
<b>9.6.5</b> Two recessed bow lights that are spot /flood combination made by Rigid or equivalent. To be place on either side of the bow below the tube set angled for slower speed travel 20-24 knots. Lights must not protrude from the hull and be waterproof.			
<b>9.6.6</b> Blue and blue, mini light bar (Tomar 970L scorpion or equal) to be installed above the radar scanner, and to be approved by DFO TA.			
<b>9.6.7</b> Whelen Siren c/w Speaker to be mounted to the T-Top.			
<b>9.6.8</b> The Contractor must supply and install an electric horn that meets the requirements of the Collision Regulations. The horn must be operated by a spring-loaded switch located on the operators' console. The "Signaltone" or Ongaro electric horns meet this requirement.			
<b>9.6.9</b> Navigation lights must be permanently fitted to the T-Top with protected wiring and must be waterproof. The fitting of a combined navigation sidelight lantern on the inflatable collar will not be acceptable. All around mast /anchor light ratchet mast mounting is acceptable.			

<p><b>9.6.10</b> The fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage that may occur when lying alongside a vessel or a pier. (The Hella NaviLED Series of lights, including the NaviLED 360 all-round light, and NaviLED side lights meet this requirement.)</p>			
<p><b>9.6.11</b> Non-white lighting must be wired together on a separate breaker of the 12 volt DC electrical system. All around Mast /Anchor light showing clear above the radar scanner as per TP 1332. Two switches to be provided, labelled: Nav masthead / anchor and Nav sidelights.</p>			
<p><b>9.6.12</b> Magnetic Compass: The Contractor must provide and install a direct read compass, with light and its own dimmer switch. (The Ritchie Helmsman 70 series meets this requirement.</p>			
<p><b>9.6.13</b> Progressive dimmers of marine grade must be fitted wherever practicable, with the capability of dimming engine monitoring gauges if they are not dimmable by the manufacturer's controls and other indicators separately from compass illumination.</p>			
<p><b>9.7 Navigation Electronics</b></p>			
<p><b>9.7.1</b> This vessel must be constructed for contractor installation of the following Contractor Supplied electronics navigation package, with displays located across the forward dash, in addition to the Col regs required equipment. Arrangement to be approved by the Technical Authority.</p>			
<p><b>9.7.2</b> NSS 16 EVO 2 Touch screen MFD, Built in Broadband/Chirp/Structure scan sounder, 10Hz GPS, HDMI video output. Mounted in navigator position.</p>			
<p><b>9.7.3</b> NSS 12 EVO 2 Touch screen MFD, Built in Broadband/Chirp/Structure scan sounder, 10Hz GPS, HDMI video output. Mounted on pedestal between rear and front seats.</p>			
<p><b>9.7.4</b> 4GBroadband Radar for Simrad NSO, NSE and NSS series includes Scanner, scanner cable 20m (66 ft), R110 interface box, Yellow Ethernet cable- 1.8m (6ft).</p>			
<p><b>9.7.5</b> Airmar SS60 600W Thru Hull 50/200Khz.</p>			
<p><b>9.7.6</b> LSS-2 transducer and 10ft extension.</p>			

9.7.7 NAIS 400 AIS transmit/receive/gamss 2 Antenna.			
9.7.8 NEP-2 Network Expansion Port			
9.7.9 NMEA2000 starter kit x2			
9.7.10 Navionics Gold 2XG Canada and US Charts.			
9.7.11 ENET cable to join units together.			
9.7.12 GS25 antenna/N2k Kit (for radar overlay).			
9.7.13 Furuno GP32 independent GPS for the lap top.			
9.7.14 GX2200 VHF with Hailer speaker to be installed.			
9.7.15 Externally Mounted EPIRB ACR RLB-35 mounted on the rope guard screen on the self-righting arch.			
9.7.16 Flir M625L, thermal imaging to be supplied and installed with interface to the operator screens.			
9.7.17 Loudhailer with siren multifunction.			
9.7.18 Whelen Siren and Speaker mounted to T-Top.			
9.7.19 CF-31 Panasonic Toughbook with Nobltec location to be approved by the TA.			
9.7.20 Laptop cradle Havis DS-Pan-112-2			
9.7.21 GSM installation equipment:			
9.7.21.1 Space and electrical capacity to be provided for a GSM Radio, Astro XTL 5000 with 03 Control head.			
9.7.21.2 Location to be arranged for Laptop cradle and power supply for laptop, GSM intercom system to be installed by contractor, David Clark System.			
<b>9.8 Pumping and Drainage</b>			
9.8.1 An electric bilge pump with 2000 gph capacity must be fitted in the main hull or largest watertight division as well as a fixed manual operated bilge pump of the diaphragm type. The bilge pump(s) must be located so that they take suction from the lowest point of the hull. Piping must be installed which will allow the bilge pump(s) to discharge directly overboard. Any additional watertight division of the hull will be serviced by a bilge pump of 1500 GPH capacity. The wire gauge for all bilge pumps must be a minimum of 10 gauge.			
9.8.2 An automatic level sensor control must be fitted that turns on the electric bilge pump (Non-Pedal type) when water is present in the bilge. The electric bilge pump control switch must			

be located on the operator's console, with settings for 'momentary on', 'off', and 'automatic' operation. An indicator light must be provided at the control that lights when the bilge pump is operating.			
<b>9.8.3</b> High water alarm for the engine installation space, which could be the 'pod' for outboards, and every other space serviced by a bilge pump.			
<b>9.8.4</b> Hull drainage - a brass or stainless steel threaded plug must be provided in the lowest point to drain the hull when out of the water.			
<b>9.8.5</b> Valves and handles must be made of non-corroding materials and must be located where they are readily accessible for operation, maintenance or removal.			
<b>9.8.6</b> A raw water wash-down pump must be located in the lazarette with a hose that can be concealed in a self-contained unit. The pump must be switched to the operator's position on the dash.			
<b>9.9 Self-Righting System</b>			
<b>9.9.1</b> Self-righting system of proven design must be installed by certified self-righting system technician.			
<b>9.9.2</b> The self-righting system must employ a re-useable bladder and be a manually activated, self-righting system that will right an inverted RIB in no more than 15 seconds in air temperatures no less than -20° C.			
<b>9.9.3</b> The bladder must be stowed deflated in a quick release enclosure on the arch.			
<b>9.9.4</b> The framework must be constructed of materials and in such a manner to allow for a ten year lifespan without failure under normal operating conditions. At a minimum the materials must be made of 2" Schedule 40, type 5086 alloy.			
<b>9.9.5</b> A recovery line of at least 10M must be fitted to the engine guard, on the port side.			
<b>9.9.6</b> The activating handle will be located on the port side so that it is above the waterline when the boat is upside down.			
<b>9.9.7</b> The system must be a compressed air system fitted with suitable over pressure relief valves and an inflation valve c/w a gauge mounted on the valve. (The Mirada series 5000 firing head and gauge meet this			

requirement.)			
<p><b>9.9.8</b> The air bottle should be manufactured out of a rugged material that can withstand severe operating conditions. (The bottles Manufactured by Structural Composites Industries (SCI) and made of high pressure (4500 p.s.i.) GRP wrapped aluminum meet this requirement.)  <a href="http://www.scicomposites.com/custom_cylinders.html">http://www.scicomposites.com/custom_cylinders.html</a>). The bottle must not be mounted on the self-righting frame but rather in an area which is well protected from the elements but will still allow for ease of service and viewing of the pressure gauge.</p>			
<p><b>9.9.9</b> Any ancillary equipment fitted to the self-righting cage must not interfere with the efficient operation of the self-righting system.</p>			
<b>9.10 Lifesaving Emergency Equipment</b>			
<p><b>9.10.1</b> The following items must be provided with appropriate stowage / securing arrangements (as appropriate for each item). All CFM fittings must be heavy duty, corrosion resistant fittings. All items must be readily accessible (the foot pump and the repair kits must be stowed in a stowage locker). The Contractor will supply and outfit the boat with the following emergency equipment:</p>			
<p><b>9.10.1.1</b> Fire extinguisher (Class 5BC, marine type or better);</p>			
<p><b>9.10.1.2</b> Boat hook, 8 feet long (retractable);</p>			
<p><b>9.10.1.3</b> Two (2) paddles secured to the tube cradle as far aft as possible;</p>			
<p><b>9.10.1.4</b> Anchor (Fortress model 7X or equivalent) and line with chain;</p>			
<p><b>9.10.1.5</b> Drogue sea anchor and line;</p>			
<p><b>9.10.1.6</b> Four (4) 25-foot ½" braided nylon mooring lines;</p>			
<p><b>9.10.1.7</b> Collar patch kit (for inflatable collar);</p>			
<p><b>9.10.1.8</b> Hull repair kit;</p>			
<p><b>9.10.1.9</b> Foot pump (bellows type, for floatation collar);</p>			
<p><b>9.10.1.10</b> One (1) water proof LED flashlight w/ spare batteries and bulb;</p>			
<p><b>9.10.1.11</b> One (1) pealess whistle;</p>			
<p><b>9.10.1.12</b> TC approved First aid kit in waterproof container;</p>			
<p><b>9.10.1.13</b> Two (2) buoyant rescue quoits attached to 30m of buoyant line;</p>			
<p><b>9.10.1.14</b> Three (3) Thermal protective aid;</p>			

9.10.1.15 Radar reflector, Mountable on cage, tube style;			
9.10.1.16 Six (6) TCMSB approved flares, type A.B.C.; and			
9.10.1.17 Buoyant safety knife with sheath and blunt tip			
<b>10.0 PROPULSION – TWIN OUTBOARDS</b>			
<p><b>10.1 Gasoline Outboards</b>          Unless otherwise specified, outboard motors ONLY will be GOVERNMENT SUPPLIED MATERIAL (GSM) and Contractor installed. Twin Yamaha 300 HP 4 stroke engines, one engine counter rotating. The outboards must be installed and operated in accordance with the engine manufacturer's recommendations. The use of engine manufacturer's approved accessories and equipment is required except for motor control cables (which must be manufacturer's best quality cables). Equipment and components must not be used, nor Sea trials performed on the engines that would, in any way, void the engine manufacturer's warranties.</p>			
10.1.1 Outboard motors should be mounted as far apart as practicable.			
10.1.2 Outboard motors must be mounted as per manufacturer's instructions.			
10.1.3 The port outboard drive must be counter rotating.			
10.1.4 Contractor to supply and install all digital gauge packs and associated equipment for the Outboards identified.			
10.1.5 The Contractor must have the engine manufacturers' service agent inspect and verify the installation prior to trials and shipping.			
10.1.6 Control cables, harnesses, propellers, and all other components will be Contractor supplied and installed.			
10.1.7 Propulsion controls to be a single lever per engine with trim switches and syncro. The throttle box/wedge should have padding on either side to protect the operator's knees when in the seated position.			
10.1.8 Propellers are Contractor supplied and must be stainless steel. The Contractor must identify, through calculation the pitch and diameter of the propellers to meet the Performance Requirements specified herein. This calculation will then be supplied to the Technical Authority upon completion of			

the contractors design check.			
<b>10.1.9 Kill Switch - Engine installations</b> must incorporate an automatic shutdown feature (kill switch) for each engine to be mounted near the ignition switches. There must be one kill switch that kills both engines. Two (2) spare cords must be provided with each boat.			
<b>10.1.10</b> If the engines are mounted directly on the transom, the hull is to incorporate an integrated motor well into the hull-deck design, with tube support to the transom.			
<b>10.1.11 Run-in operation:</b> The Engines must be installed and operated in accordance with the engine manufacturer's recommendations. The use of engine manufacturer's approved accessories and equipment is required. Equipment and components must not be used, or trials performed on the engines that would, in any way, void the engine manufacturer's warranties. The engines must have a minimum of 10 hours prior to delivery.			
<b>10.2 Outboard Motor Guard</b>			
<b>10.2.1</b> A guard made of welded 2" schedule 40, type 5086 aluminium pipe must extend out and around the outboard motors to protect them from impact. This guard must be fabricated so as to be easily removed in order to facilitate the removal of the outboard motors. The guard shall not extend past the transom more than is necessary to provide protection of the motors with minimal excess space between the motors and the motor guard.			
<b>10.3 Propulsion Controls</b>			
<b>10.3.1</b> Unless otherwise specified, gauges must be analogue-style, or Engine Manufacturers' digital equipment. Gauges must be sized and installed so they are readily visible by the operator while operating the boat.			
<b>10.3.2</b> All gauges must be backlit with an adjustable dimmer. Lighting for gauges and lighting for compass must use separate dimmers.			
<b>10.3.3</b> Propulsion control system installation must include single-lever combined engine control, for each engine, to be located at the operator's position on the starboard side of the control station. Controls must conform to engine manufacturer's recommendations for commercial use.			

<p><b>10.3.4</b> The Operator's position must be fitted with a lanyard style emergency shutdown switch which is attached to the operator and must shut down both engines if the lanyard is pulled from the switch.</p>			
<p><b>10.4 Fuel Systems</b></p>			
<p><b>ALL FUEL SYSTEM HOSES TO BE USCG A RATED</b></p>			
<p><b>10.4.1</b> Fuel systems must meet with all requirements of TP 1332 "Construction Standards for Small Vessels", which reference the ABYC standards. Regardless of interpretation of TP 1332 requirements, below deck fuel tank compartment MUST have both passive and powered bow to stern ventilation system installed with clearly labelled switch at the helm.</p>			
<p><b>10.4.2</b> The vessel must be fitted with two (2) fuel tanks with baffles, to be located under the deck for a total capacity of minimum ONE Thousand (1000) litres.</p>			
<p><b>10.4.3</b> There must be inspection hatches (8") in the deck, to allow access to the fuel pick-ups, (with the required 'demand anti siphon' valve at the tank if flow rates meet the manufacturer's requirement), vent, and fill connections, and tank level indicators.</p>			
<p><b>10.4.4</b> Arrangements must be provided for fuel tank and associated lines, vents, fills, and on / off valves, to be fitted to the boat.</p>			
<p><b>10.4.5</b> Fuel lines from the required inboard shutoff valve or manifold to the outboard motor(s) to be protected against chafing and wear.</p>			
<p><b>10.4.6</b> A fuel / water separator filter is to be mounted "in-line" to each engine with easy access to drain the sediment bowl.</p>			
<p><b>10.4.7</b> Fuel shutoff maintenance valves are to be installed at filter/ manifold system and be easily accessible by vessel operators.</p>			
<p><b>10.4.8</b> Fuel fills and vents to be located at forward bow locker location (other than diesel heater tank in transom) and must be properly labelled and lockable.</p>			
<p><b>10.4.9</b> Valves and fittings used in the fuel system must be of non-corroding materials, and all fuel valves should be readily accessible and labelled.</p>			
<p><b>10.4.10</b> Each fuel vent must be fitted with a ball check valve.</p>			
<p><b>10.4.11</b> Bilge Blower: The gasoline tank space must be fitted with a 12V D.C.</p>			

bilge blower system in excess of TP1332, controlled by a separate watertight switch on its own breaker at the control console.			
<b>11.0 STEERING</b>			
11.1 Steering system must be remote hydraulic with self-contained oil reservoir, and replaceable seals on the rams, unless propulsion system builder requires alternate steering arrangement.			
11.2 Hydraulic hoses must be of sufficient size and length to prevent pulsing. Hoses must be suitable for use in an exposed marine environment complete with stainless steel fittings			
11.3 Steering systems must be hydraulic with a maximum of 3.5 turns from hard over to hard over. (The SeaStar® and / or DayStar steering systems, depending on vessel horsepower, from Teleflex meet this requirement). Particular propulsion systems may have their own requirements for steering which must be adhered to, eg. Jet steering systems.			
11.4 All hydraulic steering hoses must be routed below deck and all hoses must be routed so that there are no pinch points on the hoses.			
11.5 The wheel / console connection must be of robust construction, to eliminate fore and aft or lateral movement of wheel / steering shaft fixture.			
11.6 The Steering wheel must be stiff enough that during rough water operations there is no flexing of the wheel and the wheel should be padded to provide a comfortable non-slip surface for the operator to grip. (Momo Marine steering wheels meet these requirements).			
<b>12.0 PAINTING AND PRESERVATION</b>			
12.1 Aluminium components must have a painted finish (an approved powder coat process is acceptable) on all specified exterior and interior surfaces, comprised of suitable etch, primers, and topcoat. Typical single coat paint systems can be applied in the 5 to 7 mil thickness range per coating set. Typical system components would be: a) etch-primer; b) two coats of primer; and c) minimum double topcoat.			
12.2 Hull and deck paint to be medium grey (RAL7042) except flat black			

specified areas or components, RAL9004. For colour guidance refer to "FC 08-2007: CANADIAN COAST GUARD FLEET IDENTITY COLOR STANDARD" which will be provided the contractor.			
<b>12.3</b> Deck finish must be non-skid paint system suitable for a marine environment to cover the entire deck except waterways and fittings.			
<b>12.4</b> Console finish must be painted in a matt black on the "interior" face, not including overhead and DFO grey on the exterior. All rough edges and sharp angled corners must be rounded and ergonomically adapted.			
<b>12.5</b> Prior to delivery the Contractor must ensure that all non-painted exposed aluminium is free of cosmetic blemishes, including all construction marks, scratches, gouges and stains.			
<b>13.0 SYSTEMS GENERAL</b>			
<b>13.1 Protection of Controls</b> All control cables, electrical wiring for the motor and the steering hydraulic hoses are to be installed in UV resistant plastic pipes (LOOM) or equal. These pipes are to be installed in such a manner as to ensure that no cable is immersed in water.			
<b>13.2 Cables</b>			
<b>13.2.1</b> Cables for all electrical distribution must be ample in size for the particular service, of marine grade tinned boat cable.			
<b>13.2.2</b> Cables must be grouped into wiring harnesses wherever possible. All wiring harnesses must be routed through protective conduit pipe. Where impractical cables and conductors must be supported with clamps or straps at least every 18 inches on horizontal runs and every 14 inches on vertical runs.			
<b>13.2.3</b> Cabling / conductors passing through watertight boundaries, decks, bulkheads or other exposed surfaces must be installed to maintain watertight integrity of the structure. Cable entry into watertight enclosures must be through watertight marine glands of suitable size.			
<b>13.3.4</b> Cabling / conductors passing through structures without watertight glands, must be protected against chafing by the use of abrasive resistant grommets.			

<p><b>13.3.5</b> Routing cables through foamed spaces must be avoided wherever possible. Cables that must be routed through foamed spaces must be run in PVC conduit pipe. The pipe must be arranged in a manner that prevents water from becoming entrapped in the pipe.</p>			
<p><b>13.4 Piping Systems</b></p>			
<p><b>13.4.1</b> Fuel System must be air tested to 3.0 psi. and be labelled per the requirements of TP1332.</p>			
<p><b>13.4.2</b> Fittings and clamps must be stainless steel. Bolts used in all fittings must be Type 316 stainless steel.</p>			
<p><b>13.4.3</b> Each watertight Hull compartment is to have its own 12V DC bilge pump, plumbed to discharge overboard from the compartment, as per TP1332.</p>			
<p><b>13.4 Navigation Equipment (COLREGS)</b></p>			
<p><b>13.4.1</b> The following must be Contractor supplied and fitted:</p>			
<p><b>13.4.1.1</b> Navigation lighting fixtures must be of such a design as to resist the effects of vibration and moisture and must be provided with adequate protection from damage.</p>			
<p><b>13.4.1.2</b> Particular COLREGS rules to note (vessels under 12 M.); Rules 22, 23, and Annex 1, rules 2, 9, and 10. (NOTE: The lights must be installed parallel to the "Normal Load" waterline that often may not be parallel to the deck.)</p>			
<p><b>13.4.1.3</b> The navigation lights must be mounted so as not to interfere with vision of the operator.</p>			
<p><b>13.4.1.4</b> The navigation lights must be permanently mounted.</p>			
<p><b>13.4.1.5</b> All navigation lights must display the arc and range of visibility as defined in the Canada Shipping Act, Collision Regulations.</p>			
<p><b>13.4.1.6</b> Navigation lights must be permanently fitted to the T-top with protected wiring and must be waterproofed. The fitting of a combined lantern on the inflatable collar will not be acceptable.</p>			
<p><b>13.4.1.7</b> The navigation light fixtures must be of such a design as to resist the effects of vibration and must be provided with adequate protection from damage, which may occur when lying alongside a vessel or a pier. (The Hella NavILED meet this requirement.) A single all-</p>			

round light for Masthead / Stern light is acceptable, mounted on a folding / detachable stanchion 1M above sidelights. LED navigation lights may be used.			
<b>13.4.1.8</b> The Contractor must supply and install an electric horn that ensures the requirements of the Collision Regulations, Rule 32 are met, i.e. with a standard small vessel 'horn' audible 0.5 NM. The horn must be installed on the vessel exterior with the 'horn' facing forward. The horn must be operated by a spring-loaded switch located on the operators' console. At a minimum a BRP 120 db horn must be installed.			
<b>13.4.1.9</b> A Magnetic Compass must be mounted near the centreline of the helm station, in easy view of the operator when facing forward.			
<b>14.0 TESTS &amp; TRIALS</b>			
<b>14.1</b> The Contractor must conduct their own inspections, tests and trials to verify successful completion of the Work in accordance with this TSOR and the proper operation of the vessel and all associated equipment. The requirements for inspections, tests and trials and associated deliverable documentation are defined in the Contract and Annexes to the Contract including any test, trials or sample reports attached thereto. All discrepancies identified through the inspection, test and trials processes must be corrected prior to delivery.			
<b>14.2</b> The Contractor must, as a minimum, inspect and test the following items for adherence to the contract requirements and proper operation (proper operation means that the equipment can be started, operated, connected together and demonstrated to function in a normal fashion, as applicable). The inspections and tests listed herein are minimums and are not intended to supplant any controls, examinations, inspections or tests normally employed by the Contractor to assure the quality of the vessel:			
<b>14.2.1</b> Weight			
<b>14.2.2</b> Construction Quality			
<b>14.2.3</b> Lifting Gear, if applicable			
<b>14.2.4</b> Propulsion Engines, including starting			
<b>14.2.5</b> Propulsion Controls			

<b>14.2.6 Steering System</b>			
<b>14.2.7 Fuel System</b>			
<b>14.2.8 Electrical System</b>			
<b>14.2.9 Electronics</b>			
<b>14.3 Sea Trials</b>			
<b>14.3.1</b> The minimum acceptable sea trial and report is as attached hereto, ATTACHMENT I OF APPENDIX II.			
<b>14.3.2</b> A copy of the stability calculations and documentations as previously submitted must be provided for the Technical Authority.			
<b>14.3.3</b> Trial Records and Reports. The requirements for recording and maintaining trials records are given in the Contract and applicable Annexes			
<b>14.3.4</b> Deliverable Documentation: The requirements for deliverable documentation are given in the Contract and applicable Annexes.			
<b>15.0 BUILDER'S PLATE</b>			
<b>15.1 National Asset Code</b>			
<b>15.1.1</b> The National Asset Code for these vessels is provided in Annex B.			
<b>15.1.2</b> The contractor must add this 5 character code to the builder's plate of each vessel with the prefix "National Asset Code".			
<b>15.2 Builder's Plate</b>			
<b>15.2.1</b> Must comply with Transport Canada TP 1332 requirements as a minimum.			
<b>15.2.2</b> A Builder's Plate must be affixed to each asset in a readily visible location, e.g. for a boat, in way of the helm position, for a trailer on the left side of the tongue.			
<b>15.2.3</b> The plate must be made of a weather resistant material compatible with that to which it is affixed.			
<b>15.2.4</b> The dimensions of the plate must be not less than 200mm x 125mm			
<b>15.2.5</b> The plate must contain the following information, permanently etched:			
<b>15.2.5.1</b> National Asset Code;			
<b>15.2.5.2</b> Naval Architect/Designer;			
<b>15.2.5.3</b> Builder;			
<b>15.2.5.4</b> Hull Number;			
<b>15.2.5.5</b> Year of Construction;			
<b>15.2.5.6</b> Lightship Weight in kilograms.			
<b>15.2.6</b> The Builder's Plate must be in both official languages.			
<b>16.0 SHIPPING AND DELIVERY</b>			

<p><b>16.1</b> Prior to shipping, the boat is to be cleaned, appropriately protected and covered in accordance with the instructions specified in this section.</p>			
<p><b>16.2</b> Prior to shipping, the boats must be secured on their respective trailers, cleaned, preserved and covered in accordance with this section. All areas of the boat are to be cleaned prior to covering for shipping. Bilges are to be dry and free of oil and debris and the fuel tanks must be full with fuel stabilizer added.</p>			
<p><b>16.3</b> The propulsion system must be preserved in accordance with the manufacturer's recommendations for storage of up to one year in an environment that will be subjected to freezing temperatures.</p>			
<p><b>16.4</b> The batteries are to be disconnected. A warning plate is to be tied to the steering wheel with a wire indicating that the boat has been protected for shipping and storage and must not be started until the propulsion machinery has been reactivated.</p>			
<p><b>16.5</b> All contact points with the boat are to be padded. A shrink wrap cover is to be provided to protect the boat during shipping and storage.</p>			
<p><b>16.6</b> Means of Delivery: For a delivery distance not exceeding 1000 km the Contractor may deliver the vessel/trailer combination on the trailer. Where the delivery distance exceeds 1000 km the trailer may not be utilized as means of delivery</p>			
<p><b>17.0 WARRANTY AND SERVICE PROVISIONS</b></p>			
<p><b>17.1 Components and Equipment Support</b></p>			
<p><b>17.1.1</b> All components and all mechanical, auxiliary, electronic and electrical equipment installed on the boat, with the exception of the collar, must be supportable by parts and service in Canada within 30 days. A collar, if any, must be supportable by parts and service in Canada within 30 days. All components and equipment must be current models.</p>			
<p><b>17.2 Spare Parts</b></p>			
<p><b>17.2.1</b> To facilitate replacement and inter-changeability of parts, as well as maintenance procedures and operator training wherever practicable the Contractor must standardize on selection of equipment, fittings and</p>			

fabrication methods within all boats supplied.			
<b>17.2.2 Parts and Service Depot(s)</b>			
<b>17.2.2.1</b> Contractor's parts depots must be capable of efficiently supplying all British Columbia with spare parts for all components of the vessel and warranty service for all components of the vessel. It is recognized that many equipment items will have their own manufacturer's warranty cards for owner registration. Contractors must have a factory authorized service representative capable of call back response in all regions of Canada within 48 hours of receiving a service call.			
<b>18.0 TRAILER</b>			
<b>18.1</b> A trailer with a boarding ladder (w/square tube for rungs with non-skid material and each rung) and hand rail secured to the tongue trailer allowing ease of access to board the boat while it is on the trailer but does not impact or impede the ability to trailer the vessel. Is to be rated at least 20% over the anticipated 'normal load' weight of the boat, and to be specified as follows:			
<b>18.1.1</b> Capacity to be minimum 10,000 lb. Welded galvanized construction.			
<b>18.1.2</b> 15 inch 6 bolt wheels with disc brakes, carrying 225 / 75R / 15D tires with 'E' load rating.			
<b>18.1.3</b> Double axle, with axle bearing protection, grease nipple.			
<b>18.1.4</b> Brake, and turn signal lighting, with wiring to be copper tinned and have a 7-prong round wiring connector.			
<b>18.1.5</b> Electric / hydraulic, jurisdiction compliant braking system; (Note braking system proposed, if other than stated requirement).			
<b>18.1.6</b> Electric / hydraulic, jurisdiction compliant braking system; (Note braking system proposed, if other than stated requirement).			
<b>18.1.7</b> Manual, two speed bow winch assembly with winch webbing strap, bow chock, and swivel tongue jack, (2500 lb.) with wheeled foot.			
<b>18.1.8</b> Trailer to be fitted with heavy-duty 'stand-on' fenders, and hitch to accommodate a 2 5/16" ball.			
<b>18.1.9</b> Trailer to have multiple roller assemblies, and spare tire and carrier, with lug wrench.			
<b>18.1.10</b> Trailer to be supplied with two			

(2) ratchet tie down straps with hooks securing boat to trailer aft. Turnbuckle to be provided for securing boat to trailer forward. Securing eyes must be sufficient in size to allow for large ratchet hooks to fit inside when securing the vessel.			
<b>18.1.11</b> Stainless steel calipers, mounting brackets and rotors with the appropriate brake pads.			
<b>18.2</b> The contractor must record the trailer sales and registration information and provide the information in each vessel manual.			
<b>APPENDIX I - FINAL DELIVERABLE DATA PACKAGE</b>			
<b>The Final Data Package which must be delivered to Canada is as defined in the Contract, but must include, as a minimum the technical publications identified in this appendix.</b>			
<b>AI.1 Deliverables</b>			
<b>AI.1.1</b> One (1) complete hard copy and one (1) complete CD electronic copy set of the manuals per vessel delivered for the operator of each vessel, to be delivered with the vessel.			
<b>AI.1.2</b> One (1) complete hard copy and one (1) complete CD electronic copy set of the manuals per vessel delivered for the Technical Authority, to be delivered to the same address identified for invoices.			
<b>AI.2 Content</b>			
<b>AI.2.1</b> The manuals must provide a physical and functional description of the craft, it's machinery and equipment, as well as delivery testing and sea trial result documentation. The manuals must include as a minimum the following three sections and as detailed below:			
<ul style="list-style-type: none"> <li>• General Information</li> <li>• Technical Information</li> <li>• Spare Parts List</li> </ul>			
<b>AI.3 General Information Section</b>			
The General Information Section must include a description of the arrangement and function of all structures, systems, fittings and accessories that comprise the boat, with illustrations as appropriate:			
<b>AI.3.1</b> Operating procedures;			
<b>AI.3.2</b> Basic operating characteristics (such as temperatures, pressures, flow rates);			
<b>AI.3.3</b> Installation criteria and drawings, assembly and disassembly instructions with comprehensive illustrations showing each step;			
<b>AI.3.4</b> Recommended planned			

maintenance; and			
<b>AI.3.5</b> Complete troubleshooting procedures.			
<b>AI4.0 Technical Information Section</b>			
The Technical Information Section is a complete set of detailed owner / operator instructions, drawings (Section 15), parts lists and supplemental data for all components of the boat (whether acquired from external sources or custom-manufactured).			
<b>AI.4.1</b> "As Fitted", dimensioned drawings must be produced for manuals to record the vessel particulars.			
<b>AI.4.2</b> "Plan and Profile, showing the General arrangement; and			
<b>AI.4.3</b> Indication of the Systems arrangement presented with the above drawings covering Bilge, Fuel, Electrical, and propulsion installations.			
<b>AI.4.4</b> Parts list must include the name, part number and serial number if applicable of the parts, items or components and must indicate the supplier (name, address, phone number, email address) of this part, equipment or component and in which part of the specification the item appears.			
<b>AI.4.5</b> Hull Serial Number (HIN), copy of builders plate, TEST and TRIAL results as per completed Attachment 1 of Appendix II, serial or manufacturer's numbers, and equipment warranty cards.			
<b>AI.4.6</b> Engine(s) and equipment: including engine and propulsion serial numbers.			
<b>AI.4.7</b> Collars; including collar material and glue materials and procedures necessary for onboard repair of the collar.			
<b>AI.4.8</b> Acceptance Certificates, and compliance sheets or certificates distributed with equipment i.e. life saving appliances, lifting appliances, engine test reports, calibration certificates, Nav light certificates, Fire suppression material certificates, flotation foam rating sheets.			
<b>AI.4.9</b> Pre-trial shop Testing Check Sheet.			
<b>AI.4.10</b> Electronics, (if applicable): including model and serial numbers.			
<b>AI.4.11</b> Regulatory and Stability documentation: as required per TP 1332, which, references ISO12217 or ISO 6185 for RIBs (if applicable).			
<b>AI.5.0 Spare Parts List Section</b>			
The Spare Parts List section must include a list of recommended initial onboard spare parts to be stocked for			

<p>the vessel. The list must include the name, part number and serial number if applicable of the parts, items or components and must indicate the supplier (name, address, phone number, email address) of this part, equipment or component and in which part of the TSOR the item appears. At a minimum this list must include the following items (as applicable):</p>			
<p><b>AI.5.1</b> Propulsion: Propellers, filters, water pump impeller, batteries, throttle and shift cables, special engine tools;</p>			
<p><b>AI.5.2</b> Electrical: Panel breakers, fuses, light bulbs;</p>			
<p><b>AI.5.3</b> Boat Structures and Fittings: Miscellaneous commonly used fasteners.</p>			
<p><b>AI.6.0 Additional Deliverable Documentation</b></p>			
<p>The following additional documentation must be delivered with each vessel:</p>			
<p><b>AI.6.1</b> Tonnage Registration Certificate in accordance with TP 13430 - <a href="http://www.tc.gc.ca/eng/marinesafety/sv_cp-gt-3948.htm">http://www.tc.gc.ca/eng/marinesafety/sv_cp-gt-3948.htm</a> .</p>			
<p><b>AI.6.2</b> A completed and signed copy of the Small Vessel Compliance Program SVCP for the vessel delivered. Website: <a href="http://www.tc.gc.ca/eng/marinesafety/sv_cp-menu-3633.htm">http://www.tc.gc.ca/eng/marinesafety/sv_cp-menu-3633.htm</a>.</p>			
<p><b>AI.6.3</b> Two (2) Bill of Sales per vessel delivered, one for the vessel and a second for the trailer with a valid Motor Vehicle Registration Certificate for the relevant Province of delivery.</p>			
<p><b>APPENDIX II - SEA TRIALS</b></p>			
<p><b>AI.1</b> Sea trials must be conducted by the Contractor to demonstrate the vessel and its equipment conform to the requirements as stated in the Contract. All expenses incident to the trials must be borne by the Contractor, including fuel unless otherwise specified. A crew provided by the Contractor must operate the vessel during sea trials. Residual fuel, if not drained for shipping, must be delivered in its tank with the vessel.</p>			
<p><b>AI.2</b> All Sea Trial instrumentation and equipment must be furnished and operated by the Contractor. Trial instrumentation, where applicable, must not replace the vessel's instruments (e.g., engine tachometer, pressure gauges, and thermometers). The Contractor must furnish all necessary hardware and fittings and must install the measuring devices. After satisfactory completion of the trials, all instrumentation must be removed and all systems restored to their original condition. The Contractor must provide two (2) copies of the calibration data</p>			

certifying the accuracy of the instrumentation for the tests and include it in the technical publications.			
<b>All.3</b> The Contractor is required to run the vessel during the builders trials until the engine(s) have accumulated their operational hours (20 hours approximately) sufficient for the initial service by the engine manufacturer's service agent and perform the initial service and provide a report of the service.			
<b>All.4</b> The Contractor must submit a Test & Trials Plan, including a description of all of the acceptance trials to be performed. As a minimum, Using Attachment I, modified to suit these vessels, the following trials must be conducted: (the vessel must operate in the Normal Load Condition):			
<b>All.4.1</b> Speed Trials - The speed trials must be done over a course at least one (1) nautical mile in length. Two (2) runs must be made over the course, one (1) in each direction with the speeds for the two (2) runs averaged. The use of GPS data (averaged) is acceptable.			
<b>All.4.2</b> Endurance Trial - The boat must operate at maximum speed for a minimum of ten (10) minute intervals in the Fully Loaded Condition over one (1) hour period considering the break in procedures of the equipment. During the endurance trials, it must be demonstrated that all parts of the propulsion system are in full operation. All systems must be operated to check for proper lubrication, control and alignment. Fuel consumption must be recorded for the one-hour trial.			
<b>All.4.3</b> Astern Propulsion - The vessel must be operated and manoeuvred using astern propulsion to establish the astern performance. During the backing performance tests the throttles must be set to provide 1/3 of the rated engine horsepower. In order to demonstrate astern performance of the engines in an emergency stop and to test the strength of the foundations, the engine must be subjected to two stops from full power ahead at maximum speed to dead in the water using reverse thrust. Time required to perform this trial must be recorded.			
<b>All.4.4</b> Steering Gear - Tests must be conducted on the steering gear to			

demonstrate the adequacy of the steering system under all operations. Manoeuvring tests must be performed to ensure that the vessel meets the stated requirements. Manoeuvring trials must be conducted in the Normal Load Condition and repeated in the Full Load Condition.			
<b>All.4.5</b> The Contractor must provide a Tests & Trials Sheet, (Attachment 1) for each boat and include this sheet in the technical publications.			
<b>All.4.6</b> Public Works and Government Services Canada Contract Authority and Technical Authority must be notified no less than 2 weeks prior to sea trials. The Technical Authority will witness and attend the sea trials. Sea trial results must be forwarded to the Technical Authority prior to delivery of the vessel.			
<b>All.4.7</b> At the conclusion of sea trials each vessel must be thoroughly cleaned and inspected. Engine cooling systems must be flushed through with fresh water. The Contractor must repair any damage to the vessel or ancillary equipment resulting from sea trials, to the satisfaction of the Technical Authority.			
<b>All.4.8</b> For the purpose of the trials, Normal Loaded Condition must be considered to be the basic vessel, fitted with all normal equipment, full fuel, with complement and loads per Vessel Particulars, <b>(see section 4.1.9).</b>			

Evaluator Name: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluator Name: \_\_\_\_\_ Date: \_\_\_\_\_

Evaluator Name: \_\_\_\_\_ Date: \_\_\_\_\_

Solicitation No. - N° de l'invitation  
F7047-150008 /A  
Client Ref. No. - N° de réf. du client  
F7047-150008

Amd. No. - N° de la modif.  
File No. - N° du dossier  
XLV-5-38087

Buyer ID - Id de l'acheteur  
xliv166  
CCC No./N° CCC - FMS No./N° VME

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## **REQUIREMENT**

To carry out the design, construction, test, trial and delivery of two (2) 8.3 to 8.6 m Rigid Inflatable Boats with Open Console T tops and trailers.

### **Mission Statement:**

The primary role of this boat will be used for fisheries management through catch monitoring and enforcement, including environmental response, search and rescue, emergency boat duties.

### **Utilization:**

Rigid Inflatable Boats (RIBs) are used extensively as primary craft for the Fisheries and Oceans fleet of vessels, as well as operating independently to carry out various program-related activities from shore-based facilities and trailers.

## **OPTION**

One additional boat and trailer is included in this solicitation. Option may be exercised at Canada's discretion.

## **DELIVERY**

Delivery of the boats and all other deliverables are required by the contract to be at destination on or before 31 May, 2016.

## **PHYSICAL CHARACTERISTICS OF THE VESSEL**

1. Length (hull) must be approx. 8.3 – 8.9 m
2. Normal load conditions
  - a) Crew of 4 with kit 450 kg
  - b) Fuel=Minimum of 1000L (2 tanks) est. 719 kg
  - c) Equipment and supplies 700 kg
  - d) payload capacity to be min 1000kg in addition to fuel.

## **REQUIRED OPERATIONAL PERFORMANCE**

The vessel will be used to conduct conservation branch operations. The vessel must have an all-weather capability to Beaufort force 8. It is desirable that this vessel has a high-speed capability of at least 40-45 knots.

The boat must be expected to have a service life of at least 10 years, with an expected usage of between 400 and 500 hours per year.

## **MANDATORY CONSTRUCTION STANDARDS**

1. Boats constructed under this TSOR must be fabricated in accordance with the current Transport Canada Marine Safety Branch (TCMSB) TP 14612 and TP 1332.
2. Canadian Standards Association C22.2 NO. 183.2-M1983 (R1999) "Standards for D.C. Electrical Installations on Boats and ABYC 'E' electrical standards."
3. CWB CSA\ACNOR W47.2; Division 2.1 certification for Aluminum Welding– latest revision."

## **TRADE AGREEMENTS**

This Purchase is being made under GSIN N1940DA, and therefore subject to the Agreement on Internal Trade and the North American Free Trade Agreement (NAFTA).